

# ADVISING MATTERS

*The*

# 49

A Guide to Harvard Academics

2016-2017



HARVARD COLLEGE  
Advising Programs Office

This guide is not the College's advising resource of record. For the most accurate and up-to-date information on concentration and secondary field requirements, please consult the undergraduate *Handbook for Students*.

# Table of Contents

|                                                                           |    |
|---------------------------------------------------------------------------|----|
| Welcome to Harvard .....                                                  | 4  |
| Fields of Concentration and the 49 Book.....                              | 5  |
| How to Read the Fields of Concentration in the Handbook for Students..... | 6  |
| Academic Advising at Harvard.....                                         | 7  |
| The Advising Relationship .....                                           | 8  |
| Building Your Board of Advisors .....                                     | 9  |
| First-Year Advising .....                                                 | 10 |
| Sophomore Advising .....                                                  | 11 |
| Concentration Advising .....                                              | 12 |
| Additional Advising Resources .....                                       | 13 |
| A Liberal Education .....                                                 | 14 |
| Requirements for the Degree .....                                         | 14 |
| The Program in General Education .....                                    | 15 |
| Gen Ed Helpful Hints.....                                                 | 16 |
| Current General Education Categories.....                                 | 16 |
| The Expository Writing Requirement .....                                  | 18 |
| The Language Requirement .....                                            | 19 |
| The Concentration Requirement .....                                       | 19 |
| Electives .....                                                           | 20 |
| Exploring the Concentrations .....                                        | 22 |
| Getting to Know Faculty/Faculty Getting to Know You.....                  | 23 |
| Reading a Syllabus.....                                                   | 24 |

## **DIVISIONS**

|                                                  |    |
|--------------------------------------------------|----|
| An Introduction to Harvard's Divisions .....     | 26 |
| Division of Arts and Humanities .....            | 26 |
| Division of Science .....                        | 28 |
| Division of Social Science .....                 | 29 |
| School of Engineering and Applied Sciences ..... | 31 |

## **CONCENTRATIONS**

|                                            |    |
|--------------------------------------------|----|
| African and African American Studies ..... | 34 |
| Anthropology .....                         | 36 |
| Applied Mathematics .....                  | 38 |
| Astrophysics .....                         | 40 |
| Biomedical Engineering .....               | 42 |
| Chemical and Physical Biology (CPB) .....  | 44 |
| Chemistry .....                            | 46 |
| Chemistry and Physics .....                | 48 |
| Classics .....                             | 50 |
| Comparative Literature .....               | 52 |
| Computer Science .....                     | 54 |
| Earth and Planetary Sciences (EPS) .....   | 56 |
| East Asian Studies (EAS) .....             | 58 |
| Economics .....                            | 60 |
| Electrical Engineering .....               | 62 |

|                                                                         |     |
|-------------------------------------------------------------------------|-----|
| Engineering Sciences .....                                              | 64  |
| English .....                                                           | 66  |
| Environmental Science and Public Policy (ESPP).....                     | 68  |
| Folklore and Mythology .....                                            | 70  |
| Germanic Languages and Literatures (GLL) .....                          | 72  |
| Government .....                                                        | 74  |
| History .....                                                           | 76  |
| History and Literature .....                                            | 78  |
| History and Science .....                                               | 80  |
| History of Art and Architecture (HAA) .....                             | 82  |
| Human Developmental and Regenerative Biology (HDRB) .....               | 84  |
| Human Evolutionary Biology (HEB) .....                                  | 86  |
| Integrative Biology (formerly Organismic and Evolutionary Biology)..... | 88  |
| Linguistics .....                                                       | 90  |
| Mathematics .....                                                       | 92  |
| Mechanical Engineering .....                                            | 94  |
| Molecular and Cellular Biology (MCB) .....                              | 96  |
| Music .....                                                             | 98  |
| Near Eastern Languages and Civilizations (NELC) .....                   | 100 |
| Neurobiology .....                                                      | 102 |
| Philosophy .....                                                        | 104 |
| Physics .....                                                           | 106 |
| Psychology .....                                                        | 108 |
| Religion, Comparative Study of .....                                    | 110 |
| Romance Languages and Literatures (RLL) .....                           | 112 |
| Slavic Languages and Literatures (SLL) .....                            | 114 |
| Social Studies .....                                                    | 116 |
| Sociology .....                                                         | 118 |
| South Asian Studies .....                                               | 120 |
| Statistics .....                                                        | 122 |
| Theater, Dance and Media.....                                           | 124 |
| Visual and Environmental Studies (VES) .....                            | 126 |
| Women, Gender and Sexuality Studies (WGS) .....                         | 128 |

## **SECONDARIES**

|                                                                         |     |
|-------------------------------------------------------------------------|-----|
| Secondary Fields .....                                                  | 130 |
| Celtic Languages and Literatures .....                                  | 131 |
| Energy and Environment (E&E) .....                                      | 132 |
| Ethnicity, Migration, Rights (EMR) .....                                | 133 |
| European History, Politics and Society (EHPS).....                      | 134 |
| Global Health and Health Policy (GHHP).....                             | 135 |
| Medieval Studies .....                                                  | 136 |
| Microbial Sciences .....                                                | 137 |
| Mind, Brain and Behavior (MBB) .....                                    | 138 |
| Regional Studies - Russia, Eastern Europe, & Central Asia (REECA) ..... | 139 |

# Welcome to Harvard!



And welcome to the start of an exciting intellectual journey! One of your most important goals, over the next three semesters, will be to decide which field of study (“concentration”) you wish to pursue. We hope you will approach this goal with an open mind and a willingness to explore, unguided by any presuppositions you may be holding now.

College level study is very different from high school level study. Every concentration at Harvard is taught by members of the faculty, the very people who create new knowledge in their fields. Learning from cutting-edge research scholars will challenge you in new ways. And although you may know a lot about certain fields – e.g., Chemistry, Economics, or English – already, there is much more to these fields at Harvard than you may suppose. Don’t assume you know a concentration just because its name sounds familiar. Finding a concentration requires serious effort on your part: reviewing different resources (like this book!), connecting with advisors, and reflecting. You may already have thought a lot about where you want your Harvard journey to take you and may even be confident of your concentration plans. If so, that’s great, but we still strongly encourage you to take risks. Your own best intellectual home at Harvard may be just where you think it is now, but it may be someplace you least expect, perhaps in a field of study you’ve never even heard of before. You’ll never know for sure unless you keep your options open; follow interesting leads; talk with lots of people (advisors, faculty, peers); and check out lots of classes. The more you explore early on, and the more informed you are in the decisions you make, the greater the likelihood is that you will thrive at Harvard.

Exploring will be fun, but it will also be challenging. Choosing courses and – later – your concentration begins with learning about

- *the teaching and learning goals (i.e., the academic mission) of concentrations you may be interested in;*
- *their structure (e.g., whether they have tutorials, require a thesis, etc., and what such things are)*
- *unique opportunities each offers (e.g., study abroad, independent research, lab experiences);*
- *the differences between closely related fields (e.g., Integrative Biology versus Human Evolutionary Biology);*
- *their recommended (and/or required) gateway courses;*
- *whether they have specific course sequencing requirements (that may necessitate planning as early as freshman year)<sup>1</sup>*

To get started read (or at least skim) the 49 Book from cover to cover noting everything that interests you. Write up a list of gateway courses you may wish to check out in fall or spring. Bring the book and your notes to meetings with your academic advisor, and continue exploring by browsing department websites, speaking with departmental advisors (at Opening Days events, and throughout the year at Advising Corner sessions in Annenberg and during office hours in the departments). Revisit the book and your notes in the months ahead. They will be an invaluable resource for you in the lead-in to declaring your concentration.

Lastly, use this book to prepare for an important advising opportunity later this year: Advising Fortnight – a two week period of pre-concentration advising events (department open houses, faculty and alumni panels, concentration information sessions, and other programs) – that will take place in late spring. You will receive more information about Fortnight next semester.

In this book, you will find overviews of:

- academic advising at Harvard
- Harvard’s curriculum
- Harvard’s concentrations and secondary fields, including:
  - what you can learn by studying them at Harvard
  - what if any “tracks” (i.e., sub-fields of study) they offer
  - what sort of advising they provide
  - what their alumni have gone on to do
  - whom you can contact for advice and answers to questions
  - links to their websites

<sup>1</sup>This is particularly true of science and engineering/applied science fields. It is also true of premedical requirements if you plan on finishing them all during college. (These requirements can also be completed, in part or entirely, in a post-baccalaureate program of study). **Note: premed studies can be successfully combined with any Harvard concentration. Medical schools give no preference, in admissions, to specific fields of study.**

- The second page of each concentration's entry in this book provides an "At a Glance" view of that field, noting:
  - gateway courses** into that field (both suggested and required courses)
  - sample advanced courses
  - sample thesis titles
  - sample departmental research opportunities
  - sample faculty research or publications

The purpose of the "At a Glance" section is to give you concrete guidance about how to explore or get started in each field (gateway courses), as well as an impression of what might await you in future years should you decide to pursue a particular field: a few of the amazing faculty you'll learn from, opportunities you may elect to pursue, and ideas that may deeply engage you.

## Questions?

Ask your advisor or email the Advising Programs Office ([advising@fas.harvard.edu](mailto:advising@fas.harvard.edu)).

*As challenging as it may be to find your intellectual home at Harvard,  
it should also be great fun.*

*We wish you best of luck finding yours, and a wonderful year ahead!*

**Good luck and happy reading!**

## Fields of Concentration and the 49 Book

*Fields of Concentration* ([handbook.fas.harvard.edu](http://handbook.fas.harvard.edu)) is the official record of all concentration requirements and directs all students in what they must do in order to receive concentration credit. There are many other sources of concentration information including department websites and handbooks as well as the 49 Book. You are encouraged to consult each of these for different purposes, but will be expected to complete the requirements outlined in *Fields of Concentration* for the year in which you declare your concentration.

Choosing a concentration is one of the most important decisions that you will make during your time at Harvard. The 49 Book will provide you with information to explore the range of concentrations and academic opportunities that are afforded to you in each area. We encourage you to explore all of your varied interests before determining which concentration to pursue. In making your decision, we also encourage you to consult *Fields of Concentration* to learn which specific courses or other academic work you will be required to complete to fulfill the requirements of your intended concentration.

# How to Read the Fields of Concentration in the Handbook for Students

The following explanation offers some insight into how to use *Fields of Concentration* to explore the requirements for each concentration. While each entry is unique, there are some general principles that guide each concentration's description.

All concentration entries begin with an introductory statement offering information about what students will study in concentration courses, what specific skills students will learn through their coursework, and what the overall goals for concentrators are as determined by the faculty overseeing the concentration. You are encouraged to read these entries carefully, as they are the basis by which particular courses are determined for concentration credit.

Following the introductory material, the concentration outlines the specific “Required Courses” for students pursuing a basic concentration as well as for honors eligibility (if available). The requirements may include specific courses such as “Economics 10a and 10b” in Economics or may offer a general topic for courses such as “One course that focuses significantly on U.S. or European history” in History.

Next, the requirements will indicate whether a “tutorial” is required for students. A tutorial is a seminar designed to train concentrators in the methods of the discipline. These courses often involve research and writing. Many tutorials are designed to prepare students for more advanced work in the field, such as a thesis.

The requirements may also outline whether you may take courses pass/fail or use alternate courses to fulfill requirements, or whether there are any unique components such as a writing, research, or language requirement. This information will ordinarily be listed under “Other information.”

Information about formal joint concentrations will also be included in the concentration entry in *Fields*. If you are considering pursuing a joint concentration, you should review this information carefully, as the number of required courses will generally be greater than for a single concentration.

Each concentration will also outline its approach to “Advising” including specific information about how concentration advisors are assigned and how you can connect with faculty in the department. Finally, each department lists information in “How to Find Out More” about the concentration. This section often includes the contact information for the Director of Undergraduate Studies (DUS), Head Tutor, or other advisors in the concentration.

Reading through the entries for *Fields of Concentration* for those areas of study in which you are interested will provide you with a solid grounding in what you will learn from a particular concentration and what courses you will take.

The screenshot displays the Harvard College Handbook for Students website. The main heading is "Fields of Concentration" for the Philosophy department. It lists "Basic Requirements: 12 half-courses" and "Requirements for Honors Eligibility: 13 half-courses". It also includes sections for "Joint Concentrations: Philosophy as Primary Concentration" and "Another Field as Primary Concentration: 8 half-courses in Philosophy". The page is organized into sections with a left-hand navigation menu.

# Academic Advising At Harvard

Academic advising challenges you to:

- explore and take chances;
- set aside any preconceived ideas and form your own judgments;
- think about how the academic choices you will make these next four years can help you become the person you wish to be – intellectually, personally, and socially;
- take full advantage of the transformative opportunities that college presents.

Over the next four years you will work with many advisors, some formal (assigned) others informal. To get the most out of advising relationships you will need to take an active role in them, responding to your advisors' outreach and reaching out yourself. College level advising is very different from high school advising. No one advisor will have answers to all your questions or know everything about Harvard's curriculum, its 49 concentrations, and its myriad academic and extra-curricular opportunities. At every stage of your academic career you will have a formal network of advisors to assist you. It's your job to build these networks out as your interests and your needs evolve. Be sure to seek advice widely so that you can exercise your own best judgment in making decisions. You are in the driver's seat, but you're not alone.

# The Advising Relationship

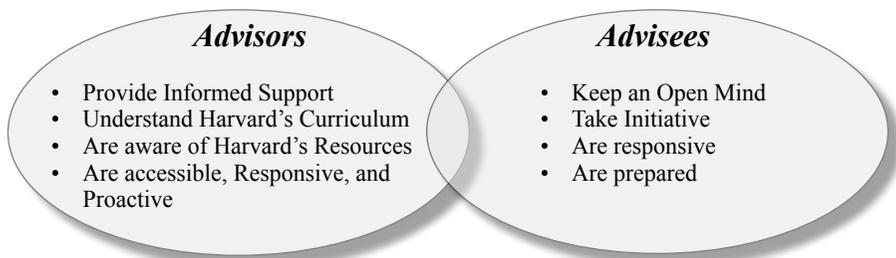
## Here's what you can expect your advisors to do:

**Provide Informed Support**, acting as a sounding board for your ideas and offering advice that fits with your goals

**Have a Broad Understanding of Harvard's Curriculum**, helping to guide you in your course selection and long-term academic planning.

**Be Aware of Harvard's Resources**, helping you to connect with faculty and staff for specialist advising and with Harvard's many support services if or as you need them. (Advisors are not expected to know the answer to every question; they are expected to refer you to others as appropriate.)

**Be Accessible, Responsive, and Proactive**, letting you know how to reach them, responding to questions or concerns of yours, and reaching out to you throughout the year.



## Here's what your advisors will expect you to do:

**Keep an Open Mind**, willing to explore academic pathways you may not have considered – or even been aware of – before you came to Harvard; weighing the advice your advisor gives you; and seeking multiple perspectives.

**Take Initiative**, coming to your advisor with questions, seeking out campus resources, researching solutions to problems, and taking active steps to build your network of advisors.

**Be Responsive**, replying to your advisor's outreach in a timely manner.

**Be Prepared**, coming to your advising meetings with notes, questions, and any information you may have gathered already; thinking seriously about the advising issues that impact you; and apprising your advisor of any changes in your academic goals.

# Building Your Board of Advisors

The official (assigned) members of your advising team each year are listed below.

In addition to these official advisors, you are strongly encouraged to ‘recruit’ other members of the Harvard community – faculty and staff – to your advising board. A successful college experience depends critically on connections you make starting in the first year...

## ***Terms 1 and 2***

- Proctor
- Freshman Advisor
- Peer Advising Fellow
- Resident Dean of Freshmen

## ***Terms 3 and 4***

- |                                  |                                    |
|----------------------------------|------------------------------------|
| • Sophomore Advisor              | • <i>Proctor</i>                   |
| • Sophomore Advising Coordinator | • <i>Freshman Advisor</i>          |
| • Allston Burr Assistant Dean    | • <i>Peer Advising Fellow</i>      |
| • House Faculty Deans            | • <i>Resident Dean of Freshmen</i> |
| • Concentration Advisors         |                                    |

## ***Terms 4-8***

- |                               |                                         |
|-------------------------------|-----------------------------------------|
| • Concentration Advisors      | • <i>Sophomore Advisor</i>              |
| • Thesis Advisor              | • <i>Sophomore Advising Coordinator</i> |
| • Allston Burr Assistant Dean | • <i>Proctor</i>                        |
| • Specialty House Advisors    | • <i>Freshman Advisor</i>               |
| • House Faculty Deans         | • <i>Peer Advising Fellow</i>           |
|                               | • <i>Resident Dean of Freshmen</i>      |

# First-Year Advising

The goals of first-year advising are to

- help you transition to college academics,
- assist you in navigating Harvard's resources and in exploring the wealth of opportunities it offers, and
- help you think about and plan for your choice of concentration.

All first-year students have an advising network that includes a Proctor, a Freshman Academic Advisor, a Peer Advising Fellow, and a Resident Dean of Freshmen. This network is your go-to resource for academic and non-academic advice and guidance.

## Board of Freshman Advisors (BFA)

The Board of Freshman Advisors is made up of faculty, staff and Proctors. Freshman Advisors help you select courses, connect with resources, think about how to balance your time, plan for your concentration, and explore curricular and extracurricular interests. Freshman Advisors typically work with 3 to 6 first-year students.

## Peer Advising Fellow (PAF)

Peer Advising Fellows are sophomores, juniors, or seniors who are hired and trained by the Advising Programs Office to provide mentoring assistance to first-year students. PAFs are assigned by entryway and, together with the entryway Proctors, are responsible for running entryway-based programming.

PAFs are matched with approximately 9 first-year students in each entryway and bring a student's perspective to your first-year advising network.

## Proctor

Proctors are staff or graduate students who live in the dorms and advise you on personal, residential, social, and academic matters. For some freshmen, your Proctor also serves as your academic advisor. Every Proctor oversees an entryway of approximately 25 to 30 students, and, together with a small group of Peer Advising Fellows, helps build community in their entryways.

## Resident Dean of Freshmen (RDF)

The Freshman Dean's Office (FDO) is responsible for the overall well-being of first-year students. Four Resident Deans of Freshmen (RDFs), each serving students in a different group of dorms, work closely with faculty and Proctors in support of students' academic and personal welfare. RDFs also serve on the College's Administrative Board.

## Sample Topics to Discuss with Members of Your Advising Network

- your most rewarding intellectual experience
- your favorite class last year
- what you're most excited to study in college
- what you're thinking of doing after college
- the motivation behind your thinking
- any recent changes in your interests or plans
- what you understand the role of the liberal arts to be in your college experience
- how you can balance your time between coursework and extracurricular activities
- challenges you've experienced in the past
- challenges you think you may confront in college
- how you're enjoying your Harvard experience so far
- any special goals you are setting for yourself this year
- particular opportunities (like overseas study, internships, or research) you may wish to pursue



# Sophomore Advising

Like first-year students, sophomores also have a primary network of advisors: a Sophomore Advisor (SA), a Sophomore Advising Coordinator (SAC), and an Allston Burr Assistant Dean (ABAD). The goal of the sophomore advising program is to help students transition into the Houses, engage in more focused academic exploration, and – towards the end of the third term – choose their concentration.

When students choose a concentration, a concentration advisor or team of advisors joins their advising network. Though concentration advisors serve as the primary academic advisors of students in their fourth term, SAs continue to provide advising support.

## Sophomore Advisor (SA)

Sophomore Advisors help students select courses, choose their concentration, connect with advisors in the departments, and plan for such opportunities as study abroad, fellowships, and summer internships. As advisors in residence, they can provide more holistic advising guidance as well.

## Concentration Advisors (CA)

Once students declare their concentration (toward the end of the third term), someone in their department becomes their advisor of record. CAs help students develop their plan of study with a special focus on their concentration requirements. (They also advise pre-concentrators.) In some concentrations CAs either live in Houses (as House Tutors) or have non-residential House affiliations.

## Sophomore Advising Coordinator (SAC)

Sophomore Advising Coordinators work with House Faculty Deans and Allston Burr Assistant Deans, as well as with the Advising Programs Office (APO), to administer their House's sophomore advising program. SACs coordinate the advising work of Sophomore Advisors in the House, run advising events, and provide one-on-one advising support for sophomores in the residence.

## House Tutors

House Tutors serve as Sophomore Advisors for small groups of students in the residence, and as generalist advisors for students in their entryways, advising on a range of academic and non-academic issues. Certain House Tutors also serve as Specialty Tutors (e.g., premed Tutors) for all students in the House.

## Allston Burr Assistant Dean (ABAD)

Every House has an Allston Burr Assistant Dean who serves as a resource for all students in the residence to consult on academic or personal matters. ABADs are the chief academic officer in their House and serve on the College's Administrative Board.

## House Faculty Deans

Faculty Deans set the tone for each House, facilitating the integration of students, staff, and resident advisors into a close-knit residential community. They do this in ways that are unique to each House.

# Concentration Advising

When students declare their concentration, their department assumes primary responsibility for providing them with academic advising. This responsibility falls to a Concentration Advisor (CA) or team of advisors. Each concentration has its own advising structure and procedures. We strongly encourage you to seek out specialist advising in the concentrations, starting this year, to help you think about which concentration may be best suited to you.

Concentration (and pre-concentration) advising guides students in three phases of their undergraduate careers: from an appropriate set of introductory courses in a particular field of study, to advanced work in that field and, when applicable, through a final project or thesis in the senior year.

Most concentrations take a team approach to advising; students are able to seek advice from a variety of sources, such as the Director of Undergraduate Studies or Head Tutor, the Assistant Director of Undergraduate Studies or Assistant Head Tutor, and the Undergraduate Coordinator.

Contact information for concentration advisors can be found on the concentration pages in this book and on *The 49* website at [concentrations.fas.harvard.edu](http://concentrations.fas.harvard.edu).

# Additional Advising Resources

## Accessible Education Office

The AEO supports the needs and rights of members of the Harvard community – students, faculty, and staff – with disabilities or chronic health issues.

See [aeo.fas.harvard.edu](http://aeo.fas.harvard.edu).

## Bureau of Study Counsel

The BSC offers one-on-one academic counseling conversations, workshops, peer tutoring, a reading course, and other resources to help students be engaged, effective, and enlivened in their learning and their life. Students are invited to meet with a BSC academic counselor as they consider – or reconsider – their choice of concentration.

See [bsc.harvard.edu](http://bsc.harvard.edu).

## Freshman Dean's Office

The FDO is responsible for the well-being of first-year students throughout the year. It also oversees pre-orientation programs and collaborates with the Advising Programs Office (APO) in administering Opening Days for first-year students.

See [fdo.fas.harvard.edu](http://fdo.fas.harvard.edu).

## General Education

The Program in General Education comprises the largest set of degree requirements outside of the concentration. Currently, students must take one Gen Ed course in each of eight categories in order to graduate; the program requirements will change in Fall 2018. The Gen Ed Office advises on this requirement. More information, including advice on choosing courses in light of the upcoming program changes, can be found in this book and at [generaleducation.fas.harvard.edu](http://generaleducation.fas.harvard.edu).

Email [gened\\_questions@fas.harvard.edu](mailto:gened_questions@fas.harvard.edu) with any questions.

## Harvard Chaplains

Harvard Chaplains is the umbrella organization of chaplains (representing more than 25 religious traditions) who serve Harvard's diverse student communities.

See [chaplains.harvard.edu](http://chaplains.harvard.edu).

## Harvard College Women's Center

The HCWC sponsors a variety of programs that address issues to do with women and gender. It provides information and resources and it helps connect and support students, faculty, and alumnae.

See [hcwc.fas.harvard.edu](http://hcwc.fas.harvard.edu).

## Office of Career Services

The OCS offers information and advice on everything from jobs and internships to planning for careers or graduate school. Sign up for OCS listservs to receive information about upcoming events.

See [ocs.fas.harvard.edu](http://ocs.fas.harvard.edu).

## Office of International Education

The OIE advises on term-time and summer study abroad opportunities.

See [oie.fas.harvard.edu](http://oie.fas.harvard.edu).

## Office of Student Life

The OS� integrates the academic, residential, and co-curricular components of students' lives, linking their experiences outside the classroom to the academic mission of the College; and their intellectual, public service, and leadership interests to their future aspirations.

See [osl.fas.harvard.edu](http://osl.fas.harvard.edu).

## Office of Undergraduate Research and Fellowships

The URAF serves Harvard students, faculty, and staff as the primary source of information about undergraduate research and about a wide range of fellowship opportunities

See [uraf.harvard.edu](http://uraf.harvard.edu).

## Harvard College Writing Center

The Writing Center offers assistance to students on all aspects of their writing, from specific assignments to general writing skills.

See [writingcenter.fas.harvard.edu](http://writingcenter.fas.harvard.edu).

# A Liberal Education

Starting with the class of 1914, Harvard requires all students to pursue an education that balances both breadth and depth. Breadth exposes you to a wide array of disciplines and approaches to learning and may push you outside your comfort zone. Depth allows you to develop expert knowledge of a particular field of study and to learn techniques of analysis and criticism that are specific to that field.

No matter which concentration you choose to pursue, Harvard will challenge you to:

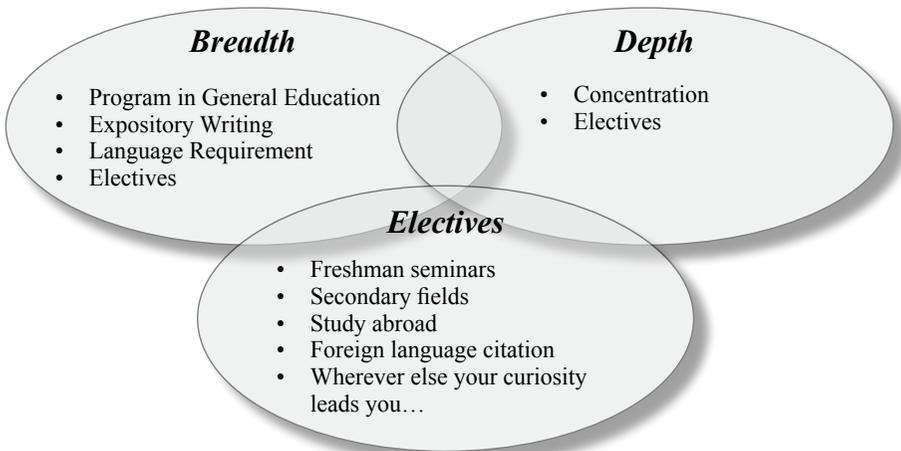
- think critically, make reasoned inferences and support your theories;
- listen to opposing points of view and learn from them;
- argue your own views and support them with evidence;
- draw meaningful connections across multiple disciplines; and
- test hypotheses and modify them in the face of new evidence.

All of these skills will serve you well in any future career. The goal of a liberal education is not simply to learn the right answers to questions but to learn how to ask the right questions.

## Requirements for the Degree

| <i>32 Courses</i>                   | <i>4 per term</i>     |
|-------------------------------------|-----------------------|
| <i>Program in General Education</i> | <i>8 courses</i>      |
| <i>Expository Writing</i>           | <i>1-2 courses</i>    |
| <i>Language Requirement</i>         | <i>0-2 courses</i>    |
| <i>Concentration</i>                | <i>10-16 courses*</i> |
| <i>Electives</i>                    | <i>2-13 courses</i>   |

\*Note that the S.B. degrees in Engineering and Applied Sciences require 21 courses.



# The Program in General Education

*“Connecting liberal education to life beyond college.”*

The Program in General Education – along with the concentration – is one of the two cornerstones of the Liberal Arts & Sciences curriculum, and thus lies at the heart of the intellectually transformative mission of Harvard College. General Education provides the opportunity to counter the narrowing effects of a concentration by helping students to make intellectual connections, to look inward to themselves and outward to the world, and to understand the deep and sometimes surprising importance of scholarly work to some of the most central aspects of life. Concentrations ensure that our students know a lot about something; Gen Ed ensures that they understand how to take that knowledge with them into the world. Gen Ed, in other words, is the intellectual fuel for the personal transformation we hope to facilitate in our students. “Enter to grow in wisdom,” reads the text on Dexter Gate, “Depart to serve better thy country and thy kind.” Gen Ed provides the building blocks for students to grow in wisdom so that they can leave our campus able to serve in thoughtful, reflective, and humble ways.

Complementing the rest of the curriculum, this program aims to achieve four goals that link the undergraduate experience to the lives students will lead after Harvard:

- to prepare students for civic engagement;
- to teach students to understand themselves as products of, and participants in, traditions of art, ideas, and values;
- to enable students to respond critically and constructively to change; and
- to develop students’ understanding of the ethical dimensions of what they say and do.

Currently, the Program in General Education requires you to complete one course in each of the eight categories listed here and described below. Additionally, one of these eight courses must also engage substantially with the Study of the Past. In order to fulfill Gen Ed requirements, courses must be taken for a letter grade.

|     |                                        |      |                                  |
|-----|----------------------------------------|------|----------------------------------|
| AI  | Aesthetic & Interpretive Understanding | SLS  | Science of Living Systems        |
| CB  | Culture & Belief                       | SPU  | Science of the Physical Universe |
| EMR | Empirical & Mathematical Reasoning     | SW   | Societies of the World           |
| ER  | Ethical Reasoning                      | US/W | United States in the World       |

The Gen Ed requirements will be changing in Fall 2018, providing more focused attention to the Gen Ed aims while enabling more exploration of different intellectual domains. These new requirements will include:

1. a General Education requirement consisting of only four courses within the new program (departmental courses will not count toward these four course requirements);
2. a distribution requirement consisting of three departmental courses from across the main academic divisions of the Faculty of Arts and Sciences (Arts & Humanities, Social Sciences, and Natural Sciences/SEAS);
3. one course in quantitative facility (details about which will be forthcoming).

You can learn more about the new requirements on the Gen Ed website: [generaleducation.fas.harvard.edu](http://generaleducation.fas.harvard.edu). Please rest assured that any Gen Ed courses you take before Fall 2018 will count for the new requirements. Please check the Gen Ed website for more detailed information and contact [gened\\_questions@fas.harvard.edu](mailto:gened_questions@fas.harvard.edu) with any questions you may have.

The most up-to-date listing of academic year offerings that satisfy Gen Ed requirements can be found at <https://my.harvard.edu>, where you can search for courses by Gen Ed category, Study of the Past, or term offered. You can use my.harvard to view recent Q scores, directly link to course websites and add courses to your electronic Study Card. To search in my.harvard for Gen Ed courses for a particular term, use the Advanced Search function, then select a Gen Ed category or Study of the Past from the drop-down menu found under “FAS – Additional Attributes.”

The most current listing of academic year offerings that satisfy distribution requirements can also be found at <https://my.harvard.edu>. In my.harvard, you can find the departments grouped by academic division by clicking on “Faculty of Arts & Sciences” under Browse Courses, selecting the appropriate division and clicking on the appropriate department for a list of its course offerings. Please note that in my.harvard, Natural Sciences is listed as simply “Sciences”.

## Gen Ed Helpful Hints

To prepare for the switch to the new Gen Ed requirements, we suggest that you take the following advice into consideration as you plan your courses between now and the new program launch:

- *Take no more than one Gen Ed course in each of the following three pairs of categories (unless there is a course that you are particularly eager to take):*
  - Aesthetic & Interpretive Understanding/Culture & Belief
  - Science of Living Systems/Science of the Physical Universe
  - Societies of the World/United States in the World

If you take more than one course in a coupled category before Fall 2018, you can count the second course toward the new distribution requirement.
- *Take one Gen Ed course in each of the following categories:*
  - Empirical & Mathematical Reasoning
  - Ethical Reasoning
- *Begin taking divisional courses now to fulfill the distribution requirement, or wait until your junior or senior year.* These courses may be taken on a Pass/Fail basis. Your choice of concentration will inevitably include a course that counts for one of these distribution requirements.

## Current General Education Categories

**Aesthetic and Interpretive Understanding (AI):** AI courses focus on the development of aesthetic responsiveness and the ability to interpret forms of cultural expression through the study of literary or religious texts, paintings, sculpture, architecture, music, film, dance, decorative arts, etc. . . . Courses in AI might explore the ability of art to effect positive social change; gender as performance; and ideas of power, westward expansion, and race in American musicals.

**Culture and Belief (CB):** CB courses aim to develop an understanding of and appreciation for the ways that social, political, religious, economic, and historical conditions shape the production and reception of ideas and works of art, either within or across cultural boundaries. Courses in CB address such topics as the concept of authorship (its significance for claims about plagiarism or copyright), censorship, conflicting interpretations of religious and other texts, institutional mediation of aesthetic experience (art museums, the music industry, the church), and violence and its representation.

**Course Planning:** AI and CB courses will count toward the Aesthetics and Culture tag in the new program. Consider taking one course in this pairing, unless there are courses you are particularly eager to take.

**Empirical and Mathematical Reasoning (EMR):** Courses in EMR teach the conceptual and theoretical tools used in reasoning and problem solving, such as statistics, probability, mathematics, logic, and decision theory. Students develop the ability to apply abstract principles and theories to concrete problems. They also learn how to make decisions and draw inferences that involve the evaluation of data and evidence, and how to recognize when an issue cannot be settled on the basis of the available evidence. Students might explore issues of health, disease, and systems for delivering health care; or consider politics in terms of rational behavior.

**Course Planning:** EMR courses will count toward the quantitative facility requirement. Consider taking one EMR course.

**Ethical Reasoning (ER):** Courses in ER teach students to reason in a principled way about moral and political beliefs and practices, and to deliberate and assess claims for themselves about ethical issues. Students in these courses may encounter a value system very different from their own that

calls attention to their own ethical assumptions. ER courses promote the students' personal development and build the capacities for argument and deliberation essential for effective civic agency. Topics might include human rights and globalization, human rights and "security", and medical ethics.

**Course Planning:** ER courses will count toward the Ethics & Civics tag in the new program. Consider taking one ER course.

**Science of Living Systems (SLS):** SLS courses explore a range of topics relating to understanding life -- its origins, the way it adapts to and changes the environment, and the ways in which human interventions can affect its trajectory. These courses provide students with the tools to evaluate scientific claims, consider alternative accounts for empirical findings, and appreciate the ambiguity that often surrounds such findings. Scientific knowledge of the living world will provide material essential to understanding the ethical dimension of many issues and decisions that students will face in the years after college, e.g., the legality of embryonic stem-cell research and the ethics of human cloning.

**Science of the Physical Universe (SPU):** Courses in SPU explore discoveries, inventions, and concepts in the physical sciences that have led to or underlie issues affecting societies across the globe including reliance on fossil fuels, the exploration of space, the proliferation of nuclear weapons, climate change, and privacy in an age of digital communication. An understanding of key facts and theories about, and concepts pertaining to, the physical universe is essential if students are to be prepared to adapt to change and to function as aware citizens.

**Course Planning:** SLS and SPU courses will count toward the Science & Technology in Society tag in the new program. Consider taking one course in this pair, unless there are courses you are particularly eager to take.

**Societies of the World (SW):** Courses in SW provide students with an international perspective by acquainting them with values, customs, and institutions that differ from their own, and help students to understand how different beliefs, behaviors, and ways of organizing society come into being. These courses may focus primarily on a single society or region, or they may address topics that transcend national boundaries, analyzing the flow and transformation of money, goods, people, resources, information, or ideas between and among different societies. Topics might include immigration policy, ethnic identity and statehood, religion and government, and global markets.

**United States in the World (USW):** Courses in USW examine American social, political, legal, cultural, and economic practices, institutions, and behaviors from contemporary, historical, and analytical perspectives. Students will come to understand this country as a heterogeneous and multifaceted nation situated within an international framework by examining ideas about what it means to be an American, about the persistence and diversity of American values, and about the relations among different groups within the US and between the US and the rest of the world. These courses prepare students for civic agency by providing critical tools to understand such issues as income disparity, health care and the state, affirmative action, immigration, election law, and zoning and urban sprawl.

**Course Planning:** SW/USW courses will count toward the Histories, Societies, Individuals tag in the new program. Consider taking one course in this pair, unless there are courses you are particularly eager to take.

*For more information on the Program in General Education,  
visit [generaleducation.fas.harvard.edu](http://generaleducation.fas.harvard.edu).*

# The Expository Writing Requirement

Writing well is one of the most important skills students should develop by the time they graduate from college. The ability to write clearly, truthfully, and convincingly is crucial for communicating with others in any number of the public and private spheres we inhabit – as consumers, family members, friends, community residents, or citizens of a democracy. Those who write well have the power to transform the worlds they navigate, big or small.

In college, this life-long project of being a thoughtful and effective communicator often takes the form of the academic essay. In Expos courses, you will learn the fundamentals of writing arguments of the types that you will encounter across a range of disciplines, from literature and anthropology to government and the life sciences. The Expos philosophy is that writing and thinking are inseparably related and that good thinking requires good writing. Although your Expos instructor will critique the style of your papers, the class focuses most on strategies of argument – exploring evidence, shaping ideas and arranging them logically, articulating a clear claim, and considering opposing claims and interpretations. Expos courses are based on a process of drafting and revising, so that you have the chance to deepen and refine your ideas – and even discover new ones. The careful attention to evidence also includes an emphasis on learning how and why using and citing sources responsibly is a bedrock value of an academic community. Indeed, the thoughtful and honest use of sources is vital to the Honor Code by which members of the Harvard community study and learn.

## Courses

The Writing Exam that you took over the summer allows the Writing Program to advise you on whether you should enroll directly in the required course Expos 20 or whether you would be better served by enrolling first in the elective course Expos 10. Students placed in Expos 20 on the basis of their Writing Exam also have the option of applying to take Humanities 10a and 10b to fulfill their Expository Writing requirement.

Your recommended course placement is on your Placement Report which you can access through the “Documents” tab on the student homepage at [my.harvard.edu](https://my.harvard.edu).

## Expos 10

Students who are recommended for Expos 10 on the basis of the Harvard Writing Exam will meet with one of the Expos 10 faculty during Opening Days to determine whether placement in Expos 10 is appropriate for them. Students who were not recommended for Expos 10 but who want to enroll in the class are also eligible to enroll with the permission of an Expos 10 advisor. Each Expos 10 class is small, limited to 10 students, and students work closely with their preceptor, receiving abundant individual attention on the issues that are important to their writing. Students choose to take Expos 10 for a variety of reasons: some know that they haven’t written extensively in their previous courses and want more experience, while others feel unfamiliar with the conventions of the American academic essay. Some have strength in other kinds of writing but have less experience in the kind of analytical writing that Harvard courses will require. And some want to gain more confidence as they approach the expectations of college writing.

Expos 10 is offered in the fall term only. Students who enroll in Expos 10 must fulfill their Expository Writing requirement by taking Expos 20 in the spring.

## Expos 20

Expos 20 is taught in sections, allowing students to choose a course that suits their interests. It also ensures that each class has no more than the maximum number of students allowed (15) so that every student can receive as much individual attention as possible. Each Expos 20 course focuses on a certain topic and group of issues; no previous knowledge of the topic is required for any course. None of the 30 or more Expos 20 courses attempts to offer a comprehensive introduction to a field of study or survey of a body of art or knowledge. Rather, these courses seek to provide a substantive intellectual occasion for writing. Expos is foremost a course in writing. Although each course has its own required texts, the focus of whatever course a student chooses will be on strategies for

writing analytical arguments, and strategies for reading in preparation for writing. Students who are recommended for Expos 20 are also eligible to fulfill the Expository Writing requirement by enrolling in Humanities 10a and 10b; students must take both semesters during the freshman year to meet the requirement. More information about Humanities 10a and 10b can be found here: <http://artsandhumanities.fas.harvard.edu/pages/pathways>.

*For more information, including how to register for sections, visit [writingprogram.fas.harvard.edu](http://writingprogram.fas.harvard.edu).*

## The Language Requirement

Language study has a critical role in a liberal education. The study of languages is essential to understanding the importance of communication and other cultures in the context of a globalized world. Studying a language other than your own provides unique insights into how people from different cultural traditions think, communicate, and organize their world. Such study combats the insularity of an ethnocentric cultural perspective. It also makes entirely new areas accessible for you to research and explore.

The language requirement must be met by the beginning of your junior year.

You can satisfy the language requirement by:

- Passing one appropriate full year course or two semester long courses in one language at Harvard (must be taken for a letter grade);
- Earning a minimum score of 700 on an SAT II Test that includes a reading component, a 5 on a College Board Advanced Placement exam, or 7 on an International Baccalaureate Higher Level exam;
- Earning a passing score on a placement exam administered by certain language departments;
- Providing evidence from the official high school transcript showing that your high school education was conducted in a language other than English;
- Completing an exam in the relevant language (if your native language is not English but your high school education was in English);
- Passing a language course or courses at the appropriate level in programs abroad, approved by the appropriate language department, either term-time or during the summer (must be taken for a letter grade).

Whether or not you place out of the language requirement, you should consider pursuing language study (at the first-year level and beyond). For most people, college is the last opportunity to study another language in depth, and to develop genuine facility with it. Many alumni report that they wish they had done more language study at Harvard.

Check to see whether you have satisfied the language requirement and to learn your placement recommendations in your “Placement and Test Scores Report” which you can find in the “Documents” tab on the Student homepage at [my.harvard.edu](http://my.harvard.edu).

Harvard offers instruction, from beginning to advanced levels, in over 80 languages, including Arabic, Czech, Hebrew, Irish, Latin, Nepali, Swedish, Vietnamese, Zulu, and more.

## The Concentration Requirement

Your concentration – the commitment you will make to a particular field or specialization – will provide the principle depth component of your liberal education. A concentration gives you a broad base of knowledge about a particular area of study and a sharpened set of skills (quantitative, writing, analytical, etc.). As you pursue your concentration, you will learn many things including how to learn more deeply.

Concentration requirements vary widely from field to field. The number of courses they require

ranges from 10 to 21. Some concentrations require you to apply. Some are honors-only. Some require a thesis. Some allow for highly individualized design; others are more regimented, having, for instance, strict course sequencing requirements. It is important to be aware of the concentration requirements of the different fields you're considering, in particular any that may require you to start planning early.

*For more information about choosing a concentration, see  
"Exploring the Concentrations" on pg. 22 of this book.*

*For specific concentration requirements, see the undergraduate [Handbook for Students](#).*

## Electives

Electives can facilitate broad-based exploration of fields or subjects that interest you, or enable you to focus on a particular area of non-concentration interest in greater depth (including secondary-field or foreign-language-citation level depth of study). The Freshman Seminar program has an especially wide array of elective offerings for first-year students.

### *Freshman Seminars*

In College surveys, students cite Freshman Seminars as one of their favorite learning experiences at Harvard.

Taught by some of Harvard's most distinguished faculty, freshman seminars offer unique settings in which to explore your interests, including fields of study that may be new to you and others in which you may be thinking of concentrating. Designed as small discussion-based courses, the goal of freshman seminars is to foster intensive interaction between students and faculty as they explore topics of mutual interest together.

Freshman Seminars are a great opportunity to:

- pursue new or current interests of yours
- explore different concentrations
- work closely with distinguished faculty
- collaborate with peers

Freshman seminars ordinarily meet once per week for 2 to 3 hours. Their atmosphere is very welcoming, and they frequently offer special instructional activities – such as studio or lab work, field trips, concerts or exhibitions – that enhance the learning experience. Freshman seminars are intellectually rigorous and demand significant engagement. Although seminars are graded SAT/UNSAT, many concentrations count freshman seminars for concentration credit. Please check with individual departments about their policies on freshman seminars.

Admission to a freshman seminar is by application, and you may apply to as many seminars as interest you. First-year students are eligible to enroll in two freshman seminars, one each term. A matching algorithm determines admission to seminars, taking into consideration a variety of factors, including student interest, faculty offerings, and available seats. Demand for many freshman seminars is high. To increase your chances of gaining admission to a seminar, in a given term, you are encouraged to apply to at least five seminars.

*For more information, go to  
[freshmanseminars.college.harvard.edu](http://freshmanseminars.college.harvard.edu).*

## *Secondary Fields*

If you are interested in doing focused coursework in a discipline outside your concentration you may elect to pursue a secondary field. The trade-off in pursuing a secondary field is a reduction in your total number of free electives.

Many concentrations offer secondary fields. These are entirely optional, and can only be declared after your concentration.

### **Secondary fields not affiliated with concentrations include:**

- Celtic Languages and Literatures
- Ethnicity, Migration, and Rights
- Global Health and Health Policy
- Medieval Studies
- Microbial Sciences
- Mind, Brain, and Behavior
- Russia, Eastern Europe, and Central Asia Regional Studies

## *Language Citations*

Students may elect to pursue language study beyond the introductory level. Language Citations recognize advanced achievement in language learning. To earn a citation requires the completion of four semesters of language study above and beyond the basic College requirement, including at least two courses at the third-year level or higher.

## Exploring the Concentrations

Harvard offers 49 fields of study in four disciplinary areas (“divisions”): Arts and Humanities, Engineering and Applied Sciences, Science and Social Science. Choosing a concentration is the most important academic choice you will make in college. It can be both exciting and daunting. Making this choice is not about checking boxes – it’s about you. Finding the right concentration requires you to truly know your own wants and needs. Be prepared to think seriously about the type of learning experience you want at Harvard. Don’t rush to decide! You have until the end of fall term, sophomore year, to declare.

Your first three terms, you should explore as widely as you can. In addition to exploring Harvard’s curriculum and getting a taste of the different concentrations through course work – GenEd classes, freshman seminars, or courses offered by the departments – concentration advisors are also available to assist you. The more thinking, planning, consulting, and exploring you do this year, the better prepared you will be to make your own best choice next year.

Before the start of fall term classes, the Advising Programs Office and the Freshman Dean’s Office will co-host divisional fairs for first-year students. These will help you with course selection and academic planning for the year.

### **As you explore different fields of study, be sure to ask yourself lots of questions...**

- What am I most excited to learn about?
- What sorts of issues most intrigue me?
- Which problems or questions (in science, human affairs, history, literature, etc.) do I want to have a hand in solving or answering?
- Am I interested in doing research?
- Am I interested in studying abroad?
- What kind of advising would help me the most?
- Would I be excited to write a senior thesis or complete some other capstone project in my senior year?
- What sort of intellectual community do I want to be part of?

**...then seek out the information you need to answer them!**

**Advising Fortnight**, a major advising program towards the end of spring term, will also help you to explore. Fortnight will kick off in Annenberg dining hall with a college-wide concentration and secondary field advising fair. Over the next two weeks, each concentration will host at least one event (e.g., an open house, a panel discussion, or an alumni presentation) where you can meet faculty, students, or alumni and learn more about the concentration. Certain related concentrations (e.g., the different life science fields) will also hold joint events to help clarify how they relate to one another.

During Advising Fortnight, you will be required to have at least one “Advising Conversation” and to report what you learned in my.Harvard. You will fulfill this requirement by attending at least one departmental event or by meeting one-on-one with a departmental advisor during posted office hours. Though you are required to report only one advising conversation during Fortnight, we hope you will have many such conversations. Indeed, faculty and other departmental advisors are always happy to meet with you even if, in the case of faculty, you are not currently enrolled in a class of theirs. We hope you will take advantage of departmental advising throughout the year.

**And of course, there is also this book. Read on...**

# Getting To Know Faculty / Faculty Getting to Know You!

Harvard faculty – outstanding teachers, mentors, and scholars – are vital resources for you: teachers, who will help you understand complex subject matter; advisors and mentors, who will help you make the most of your undergraduate experience; and connectors, who will help you build community in college, and who will continue to advocate for your success in the future. Building relationships with faculty will take effort on your part, but the rewards of putting in that effort will be great. Sustained engagement with faculty, especially outside the classroom, is essential to success in college.

As a rule of thumb, you should make it a goal of yours to *get to know at least one faculty member each semester*.

## Who

The terms used to denote faculty can be confusing. In general, “**faculty**” is an umbrella term for instructors who serve as course heads. There are several subgroups of Harvard faculty. **Professors** are either tenured (“full” professors) or “assistant” or “associate” professors who are on the tenure track. As a rule, be sure to address professors (no matter their tenure status) in emails or in person as “Professor” unless they invite you to do otherwise. (It is always best to err on the side of formality in your greetings. When in doubt, address any instructor you encounter as “Professor” at first. Faculty are often pleased to be called by their first name, but let them set the expectation. Effective relationships are built on a basis of mutual respect.) Some courses are headed by **lecturers**. Lecturers almost always have a doctorate (PhD), and should be addressed as “Dr.” unless they say otherwise. **Preceptors**, another common subset of faculty, also hold doctorates. Preceptors generally teach sections of Expository Writing, languages, mathematics, or science courses. A key difference between lecturers and preceptors is that preceptors are not course heads. Preceptors, too, should be addressed as “Dr.”. (Note: many courses, especially very large ones, also have **teaching fellows**, graduate or undergraduate students who serve in adjunctive teaching capacities.)

## How

### Office Hours

“**Office hours**” are times when faculty and other instructors (including teaching fellows) are available to meet with students for course-based advising, to assist with problem sets or assignments, or to offer general guidance. Office hours often take place in an instructor’s office (hence the name), though instructors sometimes hold them in other locations. The schedule of office hours is generally noted on the online course syllabus and/or near the instructor’s office door.

Students, especially those newer to college, often feel nervous about going to office hours. What if you don’t have a brilliant question to ask or a piercing insight to offer? What if you can’t think of anything to say? It’s perfectly normal to have these concerns. Don’t worry! Faculty don’t expect you to come to office hours with incisive questions or evidence of expertise. They simply expect you to engage with them – to come with some question, to express an interest in the subject matter they teach, to broach a conversation. Harvard faculty are incredibly impressive people, but they are also incredibly down-to-earth, and they love speaking with students, even students who are not in their courses. Don’t be shy about stepping into their offices!

If you’re not sure how to start a conversation during office hours, try:

- asking the faculty about themselves. What got them interested in their field? Did they always dream of becoming professors? How did they arrive at Harvard? What was their freshman year in college like?
- jotting down some impressions you had of a particular lecture, reading, or assignment – anything that might serve as a conversation-starting question or observation. You don’t need to be profound, you simply need to speak, and having a specific thought in mind to start a conversation might make it easier to do that.

- writing down the specific questions you have about your class assignments in advance. Having a set of written thoughts to refer to can help build your confidence especially in your first meetings with instructors.
- bringing a classmate along. Having a friend with you can help the conversation flow.
- setting a goal to go to each of your instructors' office hours at least once in the first semester. You may not click with every faculty member, and that's okay. Going to office hours early in the year will get you in the habit of meeting with faculty, forming essential relationships with them, and learning how best to advocate for your own interests in college.

Sometimes, office hours conflict with your schedule. When that happens, you're welcome to email your instructor and ask if they could meet another time. Office hours are a time you know your faculty are available, but alternatives are often possible the more flexible you yourself can be in scheduling them.

Asked what they wish they had done differently in freshman year, one of the most common responses upperclass students give is: "I wish I had taken more advantage of office hours." Getting in the habit of doing so in your first year helps foster the sorts of relationships that may lead to research and other academic opportunities in future. Getting to know faculty well means having strong advocates in your camp, advocates who can write letters of recommendation on your behalf and help prepare you for your post-graduate life. Start early!

### Other Ways

- In lecture courses, stick around after class and introduce yourself to your instructors.
- All faculty and teaching fellows are entitled to eat in the dining halls at no charge. Consider inviting them to a meal in Annenberg and engaging them in lengthier conversation than office hours may allow.
- Once a semester, the Freshman Dean's Office holds a formal First-Year Faculty Dinner in Annenberg. Faculty Dinners are great ways to get to know the faculty member whom you invite to join you.
- The Advising Programs Office, the Freshman Dean's Office, and the academic departments host a variety of programs (like Professors and Pastries, and Advising Corner in Annenberg) during the year that are designed to connect first-year students with faculty outside the classroom. Be sure to take advantage of these opportunities!

## Reading A Syllabus

Syllabi set the expectations that course instructors have for students in their classes. Most courses post their syllabus on a dedicated course website. Course staff may also distribute paper copies of the syllabus during Course Selection Week.

It's a very good idea to gather the syllabi of every class you're considering enrolling in. Review them with the members of your advising network, especially your freshman advisor. Experienced readers, bringing a nuanced perspective, can help decipher things you might not understand, or raise important questions for you to consider that you might not think to ask.

## Instructors

A syllabus tells you who is teaching your course – the course head and, as applicable, other affiliated staff (e.g., teaching fellows). A syllabus usually provides contact information for your instructor and the schedule of her or his office hours.

**Useful tip: *put the office hours for the instructors of all your courses in your personal calendar.***

## Course Overview

You can tell a lot about a course by scanning its syllabus. Does work in the course principally involve reading/writing or problem sets? Is there a lab component? Are there group projects? How often are assignments due? Are students expected to participate in class?

A syllabus typically describes a course's learning objectives and the topics it will cover. If there are any prerequisites for enrolling in the course, these will be noted as well.

## Course Materials

A syllabus typically notes which course materials (textbooks, etc.) you'll need, sometimes additionally noting vendors who sell them or letting you know about copies that have been placed on reserve in the Harvard College Libraries.

## Course Structure

Syllabi present a detailed schedule of course meetings, noting which topics will be covered each week (in lecture, section, or lab) and the details of any homework assignments. They may also note the scheduling of other meetings, such as problem solving or review sessions, during the term. Some of these extra meetings may be required, others may be optional. You are strongly encouraged to put all of these sessions in your personal calendar and to attend them all (even the optional ones!).

It is very important to note the due dates of papers, problem sets, or projects on your calendar. Pay particular attention to when the first assignments for your courses are due (these can give you important feedback about your early progress in a course).

As you gather the syllabi for different classes you're considering, be sure to keep the 'big picture' in mind. Are there weeks in which you would have several papers due, or closely spaced midterms, if you enroll in a particular set of classes? Don't be caught off guard. Make sure you speak with the members of your advising network – your freshman advisor in particular – ahead of time so that you can plan for particularly demanding stretches of the term.

## Grading Rubric

Syllabi tell you how assignments are weighted. In some courses, weekly assignments may combine to a small percentage of your final grade: in others, midterm/final exams or final projects may count for half or more of your final grade. Most syllabi will also note the course's policy on late work or makeup exams.

## Collaboration Policy

Different courses – and different fields of study in general – are liable to set different guidelines concerning the quantity and type of work you may do with the assistance of other students in the course. For instance, whereas one course may encourage you to work on problem sets in groups, another may forbid any kind of joint work. It is essential that you have a clear understanding of what is allowed, encouraged, or prohibited in each of your courses.

***If anything on a syllabus is unclear, or any questions of yours are not adequately addressed, be sure to ask your instructors or members of your advising network!***

# An Introduction to Harvard's Divisions

At Harvard, fields of study are administratively organized in three divisions (Arts & Humanities, Science, and Social Science) and one school (Engineering and Applied Sciences). The different fields that cluster in each of these areas are to some degree overlapping – some because they share a common set of questions and methods (e.g., the various life science fields in the Division of Sciences), others because they are directed towards a similar goal (e.g., the strong technology/design focus of the different fields in the School of Engineering and Applied Sciences [SEAS]). The next few pages introduce you to the different divisions and SEAS.

As you explore the different fields of study, it is important to keep in mind that Harvard's concentrations are highly interdisciplinary. Psychology, for instance, though housed in the division of Social Science, has strong affinities with fields in the division of Science; History, though housed in the same division, has strong affinities with the Arts & Humanities; East Asian Studies, though housed in the division of Arts & Humanities, has strong affinities with the Social Sciences; and so on. We encourage you to read about all of Harvard's fields of study. An awareness of interdisciplinary connections greatly expands the range of fields you may wish to explore, and can lead you down unexpected and exciting new paths.

## *Division of Arts and Humanities*

The study of the arts and humanities is transformative. Dedicated students acquire an open, questioning, and engaged attitude to life and world that stays with them after they graduate. In the words of President Drew Faust, students learn from the arts and humanities “how to imagine, adapt, interpret, change, create.” Rather than prepare students for a particular imagined future, this study prepares them for the unpredictable future that actually awaits them.

The study of the arts and humanities is profoundly social. Every major challenge that we face as a society compels us to answer basic questions about who we are, what we value most, and how best to live together. The arts and humanities address these questions through deep thinking and conversation, renewing our understanding of such matters as community, justice, intimacy, conscience, beauty, technology, and belonging. In this way, the study of the arts and humanities enables students to meet the most pressing needs of their day.

The study of the arts and humanities is also world-opening. Through texts, artifacts, music, and art, it connects students to cultures and people from around the earth and across history. It hones their senses and trains their sensibilities. It extends their linguistic, material, and experiential capacities, making them nimbler and more discerning participants in a complex and quickening global society. Students of the arts and humanities regularly report that they see the world differently and more insightfully as a result of their study.

The Division of Arts and Humanities is home to nineteen concentrations:

- Classics
- Comparative Literature
- East Asian Studies\*
- English
- Folklore and Mythology
- Germanic Languages and Literatures
- History and Literature
- History of Art and Architecture
- Linguistics
- Music
- Near Eastern Languages and Civilizations
- Philosophy
- Comparative Study of Religion
- Romance Languages and Literatures
- Slavic Literatures and Cultures
- South Asian Studies
- Special Concentrations
- Theater, Dance, and Media
- Visual and Environmental Studies

*\*Though it is administratively housed in the division of Arts & Humanities, this department's faculty and curricular offerings bridge both Arts & Humanities and the Social Sciences.*

The thirty-three departments, program committees, and centers in the Division of Arts and Humanities in the Faculty of Arts and Sciences are dedicated to the broadest possible understanding of human culture and creativity. From the riches of the world's languages to the wonders of new social media, from ancient artifacts to contemporary performances, from ethical conundrums to narrative strategies, the arts and humanities curriculum engages the manifold meanings of human experience. In the midst of this breadth, the benefits of deep and sustained inquiry are extraordinary. Students in the Division find rigor in the study of the qualitative as well as the quantitative. They enjoy the challenge of articulating with precision the conditions and import of creativity across different cultures and eras. They find inspiration in the truth that every future requires a new past, and that culture remains a dynamic process open to the new and unexpected. The best undergraduate work in the arts and humanities at Harvard fully deserves to be called art or scholarship. Through senior thesis projects and other ambitious ventures, students in the arts and humanities can – and regularly do – extend the reach of human understanding, fulfilling the noblest aim of the liberal arts. Many students arrive at Harvard with little or no familiarity with the life-changing curricular offerings in the arts and humanities. We have a pleasant duty to ensure that they appreciate them before they set their path through the College. Alumni regularly lament that they did not take sufficient advantage of the arts and humanities while at Harvard, and we owe it to our undergraduates to encourage them to seize their own fleeting opportunity. Because our undergraduates must choose a concentration early on, introducing the study of the arts and humanities to first-year students is particularly crucial. The very openness to the breadth of human experience and ingenuity that marks that study is precisely what they will need to make the most of their time at Harvard.

Course offerings in the Division range across a broad array of humanistic disciplines, including the study of literature, philosophy, religion, architecture, languages, and music. They also range across various fields of art making, from dance and creative writing, to photography and animation. Students in the arts and humanities at Harvard increasingly combine humanistic study with creative practice, finding new ways to acquire and communicate knowledge, and thereby to participate in a leading form of research.

Study in the arts and humanities is as much an ethos as a set of disciplines. To fulfill its potential, this study must lead our faculty and students to welcome the clash and vigorous defense of diverse viewpoints and to approach difference with a receptive curiosity.

Study in the arts and humanities is valuable without being vocational. In this regard, some myth-busting is in order. The all-too-common assumption that degrees in the arts and humanities are impractical lacks empirical support. Although nationwide there is a small gap between the average income of students concentrating in the humanities and that of students concentrating in the sciences or engineering, selection bias muddies the implications. In other words, quite a few students concentrating in the arts and humanities are probably less interested in making money than many students in other fields. As one writer in *Atlantic* magazine put it, “saying that business majors earn more only because of what they studied is like saying having lots of Nike running shoes in your closet makes you a faster runner.” The causal arrow very likely runs the other way. Pundits who claim that the humanities are impractical should examine the data more closely and hone their critical thinking skills! For students at Harvard, who enjoy an enviable array of career opportunities after graduation, the notion that one concentration is more practical than another is mere prejudice. The anecdotal evidence is overwhelming that studying the arts and humanities at Harvard can serve students who want to be materially successful exceedingly well.

Some students, of course, will have an interest in preparing while at Harvard for a particular career, such as a career in medicine. These students should still consider a concentration within the arts and humanities. Harvard has a long history of sending concentrators from within the Division of Arts and Humanities to leading medical schools. Indeed, administrators from these schools often remark on the excellent – and refreshing – preparation that such study provides. For students wishing to concentrate in a discipline more obviously linked to their profession, the Division offers an array of secondary fields and courses to enrich their Harvard experience. In recent years, faculty members in the arts and humanities have been generating new courses that grapple with technology, entrepreneurship, medicine, and other key areas of contemporary concern.

Generally speaking, success stems from doing what you love. The arts and humanities offer unsurpassed opportunities to find intellectual passion at Harvard and thus many pathways for success in the world.

*Visit the [Division of Arts and Humanities website](http://artsandhumanities.fas.harvard.edu) to learn more about the arts and humanities division at Harvard, [artsandhumanities.fas.harvard.edu](http://artsandhumanities.fas.harvard.edu).*

## ***Division of Science***

The Division of Science is home to fourteen concentrations that encompass all of the natural sciences, mathematics, and statistics. These concentrations are:

- Astrophysics
- Chemical and Physical Biology
- Chemistry
- Chemistry and Physics
- Earth & Planetary Sciences
- Environmental Science and Public Policy
- Human Development and Regenerative Biology
- Human Evolutionary Biology
- Integrative Biology
- Mathematics
- Molecular and Cellular Biology
- Neurobiology
- Physics
- Statistics

*\*Though it is administratively housed in the division of Social Science, Psychology's faculty and curricular offerings bridge both the Social Sciences and the Sciences, including a track that is part of the Life Sciences cluster of concentrations.*

The breadth of research performed in these departments is extraordinary. Our students, faculty, and affiliated researchers study phenomena from the tiniest subatomic particles to the largest structures in the universe; from the workings of a single protein in a cell to the complete ecology of a forest; from the most abstract realms of mathematics to applied statistical modeling of infectious diseases. All of these fields share a commitment to expanding our knowledge of the universe, including our understanding of ourselves as living organisms.

While some of the academic concentrations offered by the Division of Science align with a department in the division, others span across more than one department. Scientific research today often lives at the boundaries between traditional disciplinary areas, and thus we encourage students to pursue their academic interests broadly, and not to feel confined within one particular department or even within the Division of Science as a whole.

Students who are interested in the natural sciences, mathematics, and statistics will also find relevant courses outside the Division of Science. Many of the offerings of the School of Engineering and Applied Sciences develop skills and approaches to knowledge. Within the Social Sciences, the fields of Economics and Government use numerical and computational models that are similar to some models used in the natural sciences, and the fields of Psychology and Anthropology are increasingly informed by developments in human biology and neuroscience. The undergraduate concentrations in History and Science and in Environmental Science and Public Policy combine focused study in science with a broader understanding of the historical, societal, and environmental impact of science. Even within the Arts and Humanities, methods drawn from the natural sciences have had an increasing impact on research – from advanced quantitative techniques used to analyze and conserve works of art, to the numerical analysis of massive historical, literary, and artistic data sets.

Study of the natural sciences requires a basic foundation in mathematics. Most prospective concentrators will take a foundational course in mathematics in the freshman year, along with foundational courses in either the life sciences or the physical sciences, or both. In general, students who have acquired a solid foundation in any of the concentrations in the Division of Science will find it possible to switch to other science concentrations as their intellectual interests evolve. There is particular

flexibility within the “Life Sciences Cluster” of concentrations, which share many basic prerequisites and a coordinated advising structure. Although many of these introductory courses are quite large, students will find that most upper-level courses in the Division of Science are quite small and focused, and many of our students develop close relationships with faculty mentors, particularly through independent research.

The study of the natural sciences offers an education in critical thinking – especially quantitative critical thinking – that will be useful in many careers, not just in scientific research. Although we hope that all of our undergraduates will have an opportunity to pursue independent research in the sciences, most will not end up in research careers. Students with degrees in the natural sciences, mathematics, and statistics have found successful careers in medicine, business, finance, law, and education, not to mention the many who have continued in some area of science. We hope that, no matter what your background or potential career interest, you will take some of the exciting courses offered in the Division of Science, meet our extraordinary faculty and talented students, and do research with our faculty in our world-class research facilities. For those who do choose one of our undergraduate concentrations, we welcome you and encourage you to seek the path that is most interesting and satisfying to you as a young scientist or mathematician.

*Visit the [Division of Science website](http://science.fas.harvard.edu) to learn more about the sciences at Harvard, [science.fas.harvard.edu](http://science.fas.harvard.edu).*

## ***Division of Social Science***

The ten social science concentrations study individuals, relationships, processes and institutions in human societies across the world and over time.

At Harvard, the Division of Social Science embraces a number of diverse and highly interdisciplinary fields including:

- African and African American Studies
- Anthropology (Social Anthropology and Archaeology)
- Economics
- Government
- History
- History and Science
- Psychology
- Social Studies
- Sociology
- Women, Gender and Sexuality Studies

These concentrations consider big questions about peoples and societies past and present, and investigate phenomena large and small – the minds and brains of socially situated people; groups like families, communities, organizations, and governments; and large-scale patterns of international trade, alliance, and conflict. Several social science concentrations engage vital normative questions about timeless issues – such as the relationship between freedom and morality, or the responsibilities of citizens in a democratic polity – by examining and debating classical and contemporary ideas in social thought and political philosophy.

In some concentrations, an overarching perspective or theme applies to diverse subjects. Economics postulates that social phenomena result from interactions among goal-oriented people attempting to make the best use of their resources such as money and time. Reasoning this way can aid understanding of not just markets and economic growth but also politics, education, and the family. Central themes in Government are power and politics – in the formal institutions of governance as well as other domains of social life.

Other fields are more eclectic. Sociology studies structured social inequality – differences in race, ethnic, and cultural origins, socioeconomic position, and sex and gender; forms of social organi-

zation from small groups through nation-states; and change in human populations through births, deaths, and immigration. Social Anthropology seeks a holistic appreciation of societies, stressing interdependence among language, culture, and institutions and a comparative perspective to sensitize students to distinctions and similarities between societies. In the interdisciplinary Social Studies program, concentrators acquire a firm grounding in social and political theory and then create an individualized “focus field” that integrates several social science disciplines to better understand local, national, or world problems.

Three social science concentrations center attention on the past. In History, concentrators study diverse subjects – for example, the economy, politics, law, the environment, culture and ideas, race and gender, or urbanization – in particular times and places. History and Science highlights ideas and institutions in contemporary science and technology, conditions under which they arose, and the ways they shape today’s world. In its Science and Society track, students combine historical inquiry with substantial study in a physical or life science field. The Archaeology program within Anthropology also examines the human past, emphasizing knowledge drawn from material remains left by ancient peoples. It investigates the origins of human settlement patterns and the emergence of complex societies from earlier subsistence forms.

Two social science concentrations focus on fundamental dimensions of human social life: race and ethnicity, and gender and sexuality. African and African American Studies (AAAS) examines the history, culture, and social institutions of peoples of African descent, on the African continent and throughout the world; students opt for either an African Studies or an African American Studies track. In Studies of Women, Gender, and Sexuality (SWGS), concentrators learn about the omnipresence of gender and sexuality, how these combine with other social differences, and variations in gender-sexuality norms across place and time. Both AAAS and SWGS are highly interdisciplinary, including arts and humanities subjects like art, literature, and religion as well as social science fields like history, political science, and sociology.

Concentrators in Psychology focus on the mind and mental life, including perception, emotion, cognition, language, memory, and attention. Contemporary psychology involves some study of biology, particularly interfaces between the mind and the brain. Psychologists examine the evolution and co-evolution of brains and minds, the developmental pathways for acquiring mental capacities, and the social settings and cultures that shape individual psychology. They link these mental processes to diverse phenomena including happiness, intergroup attitudes like bias and prejudice, and mental disorders. Other social science disciplines study the mind, too: behavioral economics asks how cognitive and emotional factors shape economic choices and decisions, while political psychology considers the influence of these factors on political participation and voting.

The social sciences offer students multiple opportunities to learn about and prepare for citizenship in the increasingly globalized twenty-first century world, including comparative or regionally-focused courses on history, politics, societies, and cultures, and studies of international trade, conflict or global governance. A semester or summer of study abroad enriches any undergraduate’s College experience, but is especially valuable in an internationally-oriented concentration. Living elsewhere supplements learning in formal coursework. With careful academic planning, most social science concentrations can accommodate a semester abroad, and some actively encourage it. Additionally, Harvard’s many international centers offer undergraduates numerous opportunities: seminars and colloquia, research support, travel grants, and internships abroad.

Social scientists study their subjects systematically by conducting a wide variety of empirical research. They acquire data using ingenious methods, including laboratory experiments, field experiments that intervene in real-life settings, sample surveys, documentary evidence, and administrative data from record-keeping systems for tracking taxation, health care utilization, social media usage, and other transactions. They employ more qualitative methods like participant observation, in-depth interviewing, and ethnography to elicit an interpretative understanding of what social events and phenomena mean from the standpoint of research subjects.

By learning the research methods used in their fields, social science concentrators prepare themselves for a variety of post-College futures. Most professional education requires the ability to distill conclusions from complex bodies of information; many rewarding careers have similar requisites. Concentrating in a social science field helps students to gain such skills, along with critical reading, clear expository writing, speaking articulately, and learning to synthesize diverse perspectives and ideas. A senior thesis research project – an option in all social science concentrations, and a requirement in Social Studies – is a rewarding experience by itself, and an excellent way to combine and enhance these skills. Participating in a laboratory group or serving as an assistant to a faculty project can also help to develop them. No social science concentration offers pre-professional training, but all offer an excellent liberal arts foundation for post-graduate study in education, law, management, medicine, and other professions. Social science concentrators also enter careers in business, journalism, and public service, and a few opt for research careers in university or non-academic settings.

Connections among social science fields are increasing, not only in interdisciplinary fields like History of Science, AAAS, and SWGS, but also across disciplines – as illustrated by courses on cultural economics, cultural history, economic sociology, political economy and political psychology. Subjects like gender, intergroup relationships, organizations, politics, race and ethnicity, and religion can be studied well using numerous disciplinary lenses, so one should consider several options before selecting a concentration.

You should look across as well as within divisions when deciding what to study in depth. As noted, several social science concentrations reach into Arts and Humanities. Likewise, Arts and Humanities concentrations like East Asian Studies or South Asian Studies can involve social science. Furthermore, some social science concentrations involve natural or physical science; psychologists use neuroscientific methods to investigate brain-mind relationships, while some archaeologists and historians apply physical science and engineering techniques to understand evidence about the past. Science Division concentrations having important social science elements include Environmental Science and Public Policy and Human Evolutionary Biology.

*Visit the Division of Social Science website to learn more about the social sciences at Harvard, [socialscience.fas.harvard.edu](http://socialscience.fas.harvard.edu).*

## ***School of Engineering and Applied Sciences***

The School of Engineering and Applied Sciences has six concentrations:

- Applied Mathematics
- Biomedical Engineering
- Computer Science
- Electrical Engineering
- Engineering Sciences
- Mechanical Engineering

The launch of Harvard's newest school in 2007 was the University's answer to several big questions: Given the complex nature of problems such as climate change, the global demand for energy, cyber-security, and providing clean water, a modern infrastructure, and health care for a growing population, what fields will be most relevant in the next century? How can we bring together the vast expertise and resources of the University to address these challenges? What is the most effective way to educate students so that they can have a real-world impact on these problems, regardless of their field of study?

All of these global problems involve engineering and technology. None can be solved with technology alone. Through these concentrations, the Harvard John A. Paulson School of Engineering and Applied Sciences (SEAS) takes a fresh approach to studying and teaching these increasingly im-

portant disciplines. At SEAS, engineering, computer science, applied mathematics, and the applied sciences are an integral part of a liberal arts environment, benefiting from interdisciplinary connections to other parts of a major research university with world-class professional schools.

Students who study engineering, computer science, applied math, and applied sciences enhance their ability to create change by learning how to creatively problem-solve, how to model what already exists, and how to use these models to innovate. The mission of SEAS is to educate students to become well-rounded engineers, computer scientists, applied mathematicians, and applied scientists by enabling them to develop these skills while leveraging strong connections to the arts and humanities, natural sciences, social sciences, and the professional schools. We aim to change the world by stimulating innovation and by training critical thinkers and doers – world leaders for academia, industry, research, government, medicine, law, and education.

SEAS has no departments and no legacy fields from the 20th century. Rather, the School is designed for the future, organized around teaching foundational engineering and applied science disciplines that are essential to addressing global problems and that harness the entire University's strengths. Concentrators work with faculty who are solving big, complex problems on the frontiers of translational life sciences, computational science and engineering, energy, environmental science and engineering, robotics and controls, and nanophotonics and nanoelectronics. Harvard has a distinct advantage over other institutions in these interdisciplinary research fields because of the breadth and depth of research and scholarship encompassed by SEAS, the broader Faculty of Arts and Sciences, and the professional schools.

**Applied Mathematics** is a quantitative liberal arts concentration that provides the opportunity for combining mathematical thinking with any subject for which mathematics can be productively applied. Applied Mathematics is inherently an interdisciplinary concentration with ties to other concentrations both within and outside of SEAS. In particular, Applied Math has strong intellectual connections to Computer Science, Mathematics, Statistics, and Economics. It is common for Applied Math plans of study to be similar to within a few courses to plans of study in these other concentrations, and students often move back and forth between Applied Math and these other concentrations as they refine their academic interests. For example, students may move from Mathematics or Statistics to Applied Math if they want a deeper involvement with a particular area of application than may be provided within these other concentrations. Similarly, students may move from Applied Math to Mathematics or Statistics if they prefer to take a more theoretical approach to these studies. Students pursuing these topics can obtain an A.B. degree in Applied Mathematics or a secondary field in Mathematical Sciences. The secondary field is sponsored jointly by the Applied Mathematics area and the Mathematics Department.

**Biomedical Engineering** lies at the intersection of the physical and life sciences, incorporating principles from physics and chemistry to understand the functioning of living systems. The overarching intellectual goal of biomedical engineering is to apply quantitative engineering analysis to understand the operation of living systems, and to design novel systems to satisfy unmet needs in clinical medicine. Biomedical engineering distinguishes itself from the other life sciences disciplines by using scientific knowledge to create new biomaterials and devices. Students pursuing these topics can obtain an A.B. degree in Biomedical Engineering or A.B. or S.B. degrees in Engineering Sciences with a biomedical focus.

**Computer Science.** Computation has changed the world. From social connections to scientific analyses, from finance to marketing, the world has become interconnected, data driven, and computation centric. Computer Science is the study of the principles, techniques, and tools that enable this transformation, today and in the future. Students concentrating in Computer Science take a range of courses encompassing theoretical foundations to practical applications sharing an intellectual heritage from mathematics, engineering, and design. Computer Science concentrators learn about how modern computational systems are designed and built, and how these systems can be used to effectively and efficiently solve a variety of problems. Its lessons extend well beyond the boundaries of computer science, with applications for using and manipulating information in disciplines ranging from medicine to economics. Computer Science is closely related to a number of other

concentrations at Harvard. Courses on computer hardware design are also offered in Electrical Engineering, mathematical modeling of various phenomena in Applied Mathematics, and analysis of large data sets in Statistics.

**Electrical Engineering** students learn how to analyze, design and build devices and systems for computation, communication, and information transfer. Electrical engineering spans a broad range of topics, ranging from the physics of new materials and devices, the circuits and next-generation computing platforms made from these devices, and the algorithms that run on these platforms. The range of subtopics includes power systems, (micro)electronics, control systems, signal processing, telecommunications, and computing systems. The Electrical Engineering concentration options complement the scientific and technological goals embodied in the physical, life, mathematical, and computer sciences. Students pursuing these topics can obtain an S.B. degree in Electrical Engineering or an A.B. degree in Engineering Sciences with an electrical focus.

**Environmental Science & Engineering** is an interdisciplinary field that applies principles from the natural sciences and mathematics to better understand and address environmental challenges. The overarching goals of the field are to protect human health from adverse environmental conditions, to protect local and global environments from the deleterious effects of human activities, and to improve environmental quality. Students interested in environmental science and engineering study the fundamental processes and technologies underlying environmental systems, including natural and polluted waters and soils, the atmosphere, climate, and energy. Students learn to apply these principles to mitigate human impact on the environment by providing technical solutions and advancing innovations in environmental measurement, modeling, and control. Students pursuing these topics can obtain an A.B. or S.B. degree in Engineering Sciences with an environmental focus.

**Mechanical Engineering** students receive a foundational education in a discipline central to challenges in energy, transportation, manufacturing, robotics, and the development of public infrastructure. Mechanical engineering deals with the study and application of mechanical systems. It covers a range of subtopics including mechatronics and robotics, structural analysis, thermodynamics and engineering design, including the analysis of mechanical systems using finite element methods, the science of new materials and devices for micro electromechanical systems (MEMS), and biological and nanotechnology applications. The concentration options in mechanical engineering complement the scientific and technological goals embodied in the physical, life, mathematical, and computer sciences. Students pursuing these topics can obtain an S.B. degree in Mechanical Engineering or an A.B. degree in Engineering Sciences with a mechanical focus.

*Visit the [School of Engineering and Applied Sciences website](https://seas.harvard.edu) to learn more about engineering and the applied sciences at Harvard, [seas.harvard.edu](https://seas.harvard.edu).*

# AFRICAN & AFRICAN AMERICAN STUDIES

Tracks:

*African American Studies*  
*African Studies*



## WHO WE ARE

The field of African and African American Studies (AAAS) explores the histories, societies, and cultures of African and African-descended people. It is highly interdisciplinary, comparative, and cross-cultural. Africans and people of African descent have developed cultural forms that have profoundly shaped the fine arts and popular culture in the Americas and all around the planet. Comparative and cross-cultural studies of Africa and its diaspora contribute enormously to our understanding of race and ethnicity, and ideas about race are among the central objects of study in the field of AAAS. In addressing the ethical, social, and political consequences of racial thinking, our faculties raise questions relevant to the experiences of all peoples.

The department offers two distinct courses of study: the African track and the African American track. African track concentrators come to the program with a variety of interests; e.g., the environment, public health, music, ethnic relations, religion, politics, economic development, and literature. The African track includes study in the African Languages Program, required courses, electives, and the option of study abroad. Concentrators in this track are encouraged to take courses in a variety of departments.

The African American track attracts students with an equally wide range of interests. There are many reasons students pursue African American studies. First, African American music, literature, and visual arts are significant cultural achievements worthy of study in their own right. Second, African Americans have played a crucial role in the history of the United States, participating in the American Revolution, the Civil War, Reconstruction, women's suffrage, and the New Deal, and they led the struggle for equality in the second half of the twentieth century. Third, because American political life remains encumbered by racism and its historical legacy, a proper historical, sociological, and economic understanding of race relations continues to be essential for those who seek to make or evaluate public policy. Fourth, some of the social relations that have developed in countries such as the United States, Cuba, Jamaica, Haiti, and Brazil provide important examples of ethno-racial conflict, and through the study of them it is possible to gain insight into what remains a problem across the globe.

Exploring African and African American cultures requires us to explore aspects of many other cultures and peoples of the modern world. Thus diaspora studies are integral to each track. In many parts of the Caribbean and Latin America, for example, religions and performance arts are influenced by traditional African belief systems and practices. The cultures of the African Atlantic diaspora have also developed in interaction with many other peoples.

## ADVISING



AAAS has a very flexible advising structure. The Director of Undergraduate Studies (DUS), Jean Comaroff, meets with all concentrators to discuss their interests and to connect them with like-minded faculty. All concentrators are assigned individual faculty advisors. Study cards are signed by the DUS.

## ALUMNI



Students who graduate with a concentration in AAAS go on to pursue advanced degrees in fields such as history, literature, political science, and sociology. They also go on to work in a wide variety of careers in education, business, medicine, arts and entertainment, law, public policy, and the arts and sciences.



## Gateway Courses

Suggested and/or  
Required Courses



- **AAAS 10:** Introduction to African Studies; spring (required of concentrators in the African American Studies track)
- **AAAS 11:** Introduction to African Studies; fall (required of concentrators in the African Studies track)
- **AAAS 20:** Introduction to African Languages and Cultures; fall



## Sample Advanced Courses



- AFRAMER 197: Poverty, Race, and Health
- AFRAMER 105X: Anthropology and Africa
- AFRAMER 142: Hip-hop and Don't Stop - Global Hip-hop
- AFRAMER 119X: Chocolate, Culture, and the Politics of Food
- AFRAMER 123X: Mass Incarceration in Historical Perspective



## Sample Thesis Titles



- "I Feel Empowered": A Qualitative Study of a Mobile Health Clinic in Boston
- Laying Colonial Tracks: The Development of Power Structures Along the Uganda Railway
- From Rapper to Provocateur: Three Dialectics on Aesthetics, Appropriation, and Authenticity in the Artistic Endeavors and Creative Exploits of Kanye West



## Sample Faculty

Research and/or Publications



- Lawrence Bobo:  
*Unfair by Design: The War on Drugs, Race, and the Legitimacy of the Criminal Justice System*
- David Williams:  
*Racism and Health I: Pathways and Scientific Evidence*
- Jacob Olupona:  
*Òrìsà Devotion as World Religion: The Globalization of Yorùbá Religious Culture*
- Ingrid Monson:  
*Freedom Sounds: Civil Rights Call Out to Jazz and Africa*
- Suzanne Preston Blier:  
*Art and Risk in Ancient Yoruba: Ife History, Power, and Identity c. 1300.*
- Jean and John Comaroff:  
*Theory from the South: Or, How Euro-America is Evolving Toward Africa*

# ANTHROPOLOGY

## WHO WE ARE

By the most common definition, anthropology is the study of human diversity in the distant past and the present and, as such, teaches us to recognize the remarkable array of circumstances in which human beings live their lives and make meaning from them. Our faculty consists of scholars whose work covers every time period from the pre-historical to the present, and every major world area.

These qualities can be found in the diverse range of topics and places that some of our recent students have investigated:

- New Hawaiian identity in Hula performance
- Advertising and the imagining of college student identity
- The role of finger rings in medieval England
- The impact of water shutoffs in Detroit
- Sexual reproductive rights
- Hawaiian activism and the thirty-meter telescope
- The value of life in Tort Law
- Scientific practice in the Harvard Stem Cell Institute

But anthropology is more than just a catalog of diversity. There is an oft-cited phrase that anthropology “makes the familiar strange and the strange familiar.” What does this mean? At the very least, it means stepping back and seeing ourselves the way others might see us – a shift in perspective that is foundational to human empathy and humility. Anthropology also invites deeper analysis of behaviors that we might think we fully understand but that have histories and complexities that only reveal themselves to careful investigation. This is why we do long-term field research in local languages to understand social life in all its richness and depth. And finally, making the familiar strange demands an ethical and political accounting. It means not accepting the world as given. This might well be the heart of the discipline, its moral optimism: the conviction that things can be different and better – and that knowledge about the world should be oriented towards greater empathy, solidarity, and equality.

Most students choose to focus their studies in one of three programs of study: Social Anthropology, Archaeology or a combined track that focuses on

both approaches. All three options offer flexible plans of study, small tutorials, individual advising, and opportunities to engage with research in the classroom and through independent projects, sometimes leading to a senior honors thesis. We welcome students interested in interdisciplinary approaches to the social sciences and humanities, exploring study abroad and language study, and curious about exploring other ways of being in the world.

## ADVISING



The Director of Undergraduate Studies has overall responsibility for the academic progress of undergraduates and, along with the Assistant Director of Undergraduate Studies is available by appointment for general academic and administrative advising. The Undergraduate Program Coordinator provides day-to-day advising to current and prospective students, and can assist students with declaring a concentration or secondary, information on course offerings, and many other advising matters.

## ALUMNI



Anthropology alumni pursue a variety of career paths, including consulting and advertising, global health and medicine, law, government, academia, media and the arts, and social entrepreneurship.

**Gateway Courses**  
**Suggested and/or**  
**Required Courses**



**Archaeology**

- **Anthro 1010:** The Fundamentals of Archaeological Methods and Reasoning
- **Anthro 1130:** Archaeology of Harvard Yard I
- **Anthro 1250:** Pyramids of Giza - Technology, Archaeology, History
- **Freshman Seminar 70N:** Finding Your Inner Neanderthal

**Social Anthropology**

- **Anthro 1600:** Grounding the Global - Anthropological Approaches
- **Anthro 1682:** Gangsters and Troublesome Populations
- **CB 62:** Language and Culture
- **SW 51:** Politics of Nature



**Sample Advanced Courses**



**Archaeology**

- **Anthro 1080:** American History Before Columbus
- **Anthro 1095:** Urban Revolutions - Archaeology and the Investigation of Early States
- **Anthro 1493:** The History of Pre-History - The Paleolithic in the Peabody Museum

**Social Anthropology**

- **Anthro 1785:** State and Violence in Latin America
- **Anthro 1988:** Kinship, Citizenship, and Belonging
- **Anthro 2855:** Deep China



**Sample Thesis Titles**



**Archaeology**

- **With This Ring:** Textual and Material Evidence for the Role of Rings in Medieval England, 1350-1550 AD.
- **An Alternate Approach to Questionably Authentic Objects:** An X-Ray Fluorescence Mineral Identification Study of Three Mesoamerican Mosaic Skulls
- **World Heritage at a National Icon:** Combining Archaeology and African-American Interpretive Programs at Colonial Williamsburg

**Social Anthropology**

- **Posthumanism in the Sea King's Palace:** Jellyfish Imaginations and Encounters
- **The Detroit Water Shutoffs:** An Ethnography of Governance and Activism
- **(In)visible Bodies:** The National Campaign to 'Eradicate' Female Genital Cutting in Eritrea
- **Branding Harvard:** The Advertising & Imag-



**Continued...**



ining of the College Student Identity

- **Bodies in the Street:** Social Mobility and Spatial Segregation in São Paulo, Brazil



**Sample Department Research Opportunities**



Supervised thesis research and independent studies with faculty in various areas including: Archaeology and Ancient Civilization; Cities, Urbanism, and Transnationalism; Ecology and Materiality; Economy, Markets, and Modernity; Gender and Sexuality; Health and Medicine; Historical Anthropology; Linguistic Anthropology; Political Anthropology; Race And Ethnicity; Religion; Science and Technology; Sensory Ethnography; and Space and Landscapes

Summer Programs: Harvard Summer Program in South Africa | The Viking Studies Program in Scandinavia | Harvard Summer Program in San José de Moro, Peru | Harvard Summer Program in Ashkelon, Israel



**Sample Faculty Research and/or Publications**



Ajantha Subramanian

- Political economy, political ecology, colonialism and postcoloniality, space, citizenship, South Asia, and the South Asian diaspora.
- *Shorelines: Space and Rights in South India* (Stanford University Press, 2009)

Laurence Ralph

- Gang formations, urban anthropology, disability, medical anthropology, masculinity, race, theories of violence, popular culture and hip hop.
- *Renegade Dreams: Living Through Injury in Gangland Chicago* (University of Chicago Press, 2014)

Rowan Flad

- Chinese archaeology, emergence and persistence of complex societies in the Sichuan Basin, interregional interaction and the Proto-Silk-Road, technology and technological change, specialization, Zooarchaeology.
- *Ancient Central China: Centers and Peripheries along the Yangzi River* (Cambridge University Press, 2013)

David Carrasco

- Urban ecology and ceremonial centers, practices and symbolic nature of ritual violence and state organization in comparative perspective, Mesoamerica.
- *Religions of Mesoamerica, 2nd ed.* (Waveland Press, 2013)

## WHO WE ARE

We can characterize what applied mathematicians should learn by examining what they do. Mathematical scientists who identify themselves primarily as applied mathematicians function in complementary dual roles in varying proportions.

First, they develop, implement, and study mathematical, statistical, and computational techniques broadly applicable in various fields. Second, they bring mathematical modeling skills to bear on particular scientific problems through judicious approximations to obtain novel insights and predictions when the underlying phenomena are thought to be relatively simple and well understood, or through the creation of conceptual frameworks for quantitative reasoning and measurement when the underlying phenomena are complicated and less well understood. In their methodological role, applied mathematicians may function temporarily as mathematicians, statisticians, or computer scientists; in their phenomenological role, they may function temporarily as physicists, chemists, biologists, economists, engineers, and the like. In both roles, they must possess relevant knowledge, technical mastery, and educated taste; clearly this necessitates specialization.

Ideally, applied mathematicians demonstrate over time substantive involvement with both the mathematical and scientific aspects of their dual roles. Inside academia, their activities are usually carried out in collaboration with students or colleagues; outside academia, they often serve as part of a multidisciplinary team tackling complex problems under time and resource constraints. In either context, a premium is placed on outstanding ability to communicate with fellow technical professionals. Applied mathematics is inherently interdisciplinary, in motivation and in operation. This vision informs the design of the concentration.

The Applied Mathematics concentration involves a broad undergraduate education in the mathematical sciences, especially in those subjects that have proved vital to an understanding of the world around us, and in some specific area where mathematical methods have been substantively applied. The goal is to acquire experience at a mature level, consistent with the nature of a Harvard undergraduate

education. Generally, students select the concentration because they like to use mathematics to solve real-world problems. Some want a deeper involvement with an area of application than may be provided within a mathematics, statistics, or computer science concentration. Others want a more mathematically-oriented approach to an area of application than that normally provided within the corresponding concentration; mathematical economics is a prime example. Yet others want a special program not otherwise available, usually involving an area of application in which mathematical modeling is less common.

## ADVISING



Students in Applied Math have a concentration advising team that consists of an Assistant Director of Undergraduate Studies, a Director of Undergraduate Studies, and an individual faculty advisor. Students should plan to meet regularly with their advising team to discuss their plan of study, academic interests, and career goals. Currently enrolled College students outside of Applied Math, including pre-concentrators, are encouraged to contact the Assistant Director, the Associate Director, or a Co-Director of Undergraduate Studies to discuss their interests in Applied Math.

## ALUMNI



Applied Mathematics graduates have used their skills to pursue many career paths, from Wall Street traders to analysts to bioinformaticists, or used their knowledge as a stepping stone to graduate work in mathematics, biology/medicine, engineering, or social sciences. The Society for Industrial and Applied Mathematics (SIAM) website points out an obvious yet incredibly important point: “Industrial careers for those with a background in mathematics rarely carry a simple title like ‘mathematician.’ The very idea of a career in mathematics has evolved and diversified. Mathematics may stand alone as a science, but as a career, it’s almost always coupled with a specialty or area of research interest.” Whatever the benchmark, career prospects for graduates are excellent and will likely remain so in the future. Read about some of our Applied Mathematics alumni at [seas.harvard.edu/programs/applied-mathematics/careers-alumni](https://seas.harvard.edu/programs/applied-mathematics/careers-alumni).

**Gateway Courses**  
Suggested and/or  
Required Courses

- **MATH MA and MB or 1A:** Introduction to Functions and Calculus
- **MATH 1B:** Calculus, Series, and Differential Equations
- **APP MATH 50:** Introduction to Applied Mathematics

**Sample Advanced Courses**

- APMTH 121: Introduction to Optimization - Models and Methods
- APMTH 105: Ordinary and Partial Differential Equations
- APMTH 106: Applied Algebra
- APMTH 201: Physical Mathematics I
- APMTH 115: Mathematical Modeling

**Sample Thesis Titles**

- The Effect of Female Leadership and Female Peers on Junior-Level Women within Organizations
- Fragmented Labor Markets and the Spatial Structure of Cities in Developing Countries
- Making the Score Smarter: A Rhythmic Correction Model for Optical Music Recognition Software
- Cardinal Utility and Incomplete Information in School Choice: Strengthening the Case for the Boston Mechanism
- Modeling Mechanical Interactions between Cancerous Mammary Acini
- Show Me the Money: Examining the Validity of the Contract Year Phenomenon in the NBA

**Sample Department Research Opportunities**

Contact individual faculty to discuss research opportunities with them. Many AM faculty have projects available. For summer, the program PRISE funds housing and support for undergraduates to pursue summer research experiences with faculty.

A selection of research areas: Economics and Computation; Modeling Physical/Biological Phenomena and Systems; Scientific computation

**Sample Faculty Research and/or Publications**

- Ariel Amir:
- Stochastic processes, disordered systems, modeling complex processes, biophysics.
- Michael Brenner:
- Applied mathematics problems in the physical and biological sciences
- Yiling Chen:
- Using prediction markets to estimate the reproducibility of scientific research
- Sean Eddy:
- Development of computational methods for RNA, protein, and genome sequence analysis
- L Mahadevan:
- Organization of living and nonliving matter in space and time: origami tessellations, cortical convolutions, biomimetic printing
- Chris Rycroft:
- Scientific computation and mathematical modeling for mechanics of materials, particle simulation, and problems from biology

# ASTROPHYSICS

Tracks: *Astrophysics*

## WHO WE ARE

The science of astrophysics involves the study of matter and radiation in the universe as understood through the laws of physics. Astronomical phenomena exhibit an extreme range of physical conditions, from superfluid neutrons in neutron stars, high-temperature nuclear reactions in supernovae, and strong gravitational fields near black holes, to the unique state of the universe during its earliest phases. Theoretical attempts to describe these and more familiar phenomena (such as stars and galaxies) have achieved a useful understanding in many cases. However, our overall knowledge of the universe is still woefully incomplete, and our contemporary physical knowledge is often stretched to its limits in attempting to understand physical conditions that cannot be reproduced in terrestrial laboratories.

This program builds from a foundation of modern physics to a general account of the known contents of the universe, emphasizing current research at each step. Astronomy 16 and 17 provide a complete introductory survey to the major fields of astrophysics, and Astronomy 100 is a survey of modern observational methods that includes travel to use our professional telescopes in Arizona. The research tutorial Astronomy 98 places students in close contact with the wide range of research activities at the Harvard-Smithsonian Center for Astrophysics. Undergraduates are strongly encouraged to pursue research projects (conducted under the mentorship of members of the faculty), which culminate in their junior papers and optional senior thesis.

## ADVISING



All concentrators in Astronomy are assigned individual faculty advisors in consultation with Edo Berger, Director of Undergraduate Studies. These advisors are able to sign study cards as is Prof. Berger in their absence. These faculty advisors may or may not be the person with whom students ultimately do research as they are free to approach anyone of the 400 scientists at the Center for Astrophysics about a research project.

## ALUMNI



For roughly half of our students, the concentration in astrophysics is the foundation for graduate study (in astrophysics or a related field such as physics or planetary science) resulting in the PhD. Concentrators who have pursued this route work in academia as professors and teachers, at national observatories as astronomers and support scientists, at national laboratories and NASA research centers, at private research foundations, and in industry. Importantly, half of our concentrators do not intend to seek further study through a graduate degree. Rather, they pursue the concentration out of intellectual curiosity and find that the rigor, approaches, and skills emphasized in the concentration are valued greatly in a host of career paths. Our courses are united by the intersection of imaginative problem solving with quantitative data analysis, and we emphasize independent, mentored research and the presentation of that research through carefully crafted writing and persuasive speaking. Recent graduates have pursued careers in education, medicine, finance, engineering, public administration, the military, public relations, and in the computer software and technology industry.

## QUESTIONS?

Edo Berger\*, Director of Undergraduate Studies: [eberger@cfa.harvard.edu](mailto:eberger@cfa.harvard.edu), 617-495-7914 |

Peg Herlihy, Department Administrator: [pherlihy@cfa.harvard.edu](mailto:pherlihy@cfa.harvard.edu), 617-495-3753 |

\* Study abroad contact



**Gateway Courses**  
*Suggested and/or Required Courses*



- **Astronomy 16:** Stellar and Planetary Astronomy; spring
- **Astronomy 17:** Galactic and Extragalactic Astronomy; fall
- **Astronomy 16 and 17** may be taken in either order; whichever is taken first, must be preceded or taken concurrently with one introductory course in Mechanics:
- **Physics 15a:** Introductory Mechanics and Relativity; fall, spring
- **Physics 16:** Mechanics and Special Relativity; fall
- **Physical Sciences 12a:** Mechanics from an Analytic, Numerical, and Experimental Perspective; spring
- **Mathematics or Applied Mathematics 21a, 23a, 25a**

**Sample Advanced Courses**



- ASTRON 100: Methods of Observational Astronomy
- ASTRON 120: Celestial Navigation
- ASTRON 130: Cosmology
- ASTRON 189: Exoplanet Systems
- ASTRON 191: Astrophysics Laboratory

**Sample Thesis Titles**



- Space Rocks: Studies of the Composition of Asteroids and Meteorites
- Physically Modeling Kuiper Belt Contact Binaries
- Using the Velocity Anisotropy Technique to Investigate Interstellar Magnetohydrodynamic Turbulence
- Native Hordes: An Experiment in Active Disobedience
- The Distribution and Chemistry of Formaldehyde Around TW Hydrae

**Sample Department Research Opportunities**



Observational, experimental, theoretical, and numerical astronomy, astrophysics, and astrochemistry. The Center for Astrophysics is the largest astronomy research institution in the United States.

**Sample Faculty Research and/or Publications**



- Edo Berger:
- Time-domain astrophysics & gravitational waves
- David Charbonneau, John Johnson, Karin Oberg, Dimitar Sasselov:
- Exoplanets & planet formation
- Charlie Conroy, Daniel Eisenstein, Douglas Finkbeiner, Lars Hernquist, John Kovac, Abraham Loeb:
- Cosmology & galaxy formation/evolution
- Alyssa Goodman:
- Star formation
- Jonathan Grindlay, Ramesh Narayan:
- High-energy astrophysics

## WHO WE ARE

**B**iomedical engineering lies at the intersection of the physical and life sciences, incorporating principles from physics and chemistry to understand the operation of living systems. As in other engineering fields, the approach is highly quantitative: mathematical analysis and modeling are used to capture the function of systems from subcellular to organism scales. An education in Biomedical Engineering, and engineering more broadly, enables students to translate abstract hypotheses and scientific knowledge into working systems (e.g., prosthetic devices, imaging systems, and biopharmaceuticals). This enables one to both test the understanding of basic principles and to further this knowledge, and it places this understanding in the broader context of societal needs. In recognition of the pivotal importance of the life sciences and the technologies they inspire to our society, Harvard is committed to broadly educating engineers who will become leaders in the developing field of Biomedical Engineering.

The objective of this concentration is to provide students with a solid foundation in engineering, particularly as applied to the life sciences, within the setting of a liberal arts education. The concentration is flexibly structured for a diversity of educational and professional objectives. It enables the acquisition of skills drawn from the humanities, social sciences and sciences, which enhance engineering knowledge and which will contribute to future leadership and technical success.

The A.B. degree consists of 14 four-credit-courses. This degree prepares students for the practice of Biomedical Engineering and for graduate study in engineering and medicine, and it is an excellent preparation for careers in other professions (business, law, etc.) as it provides an ideal framework for a well-rounded technical and scientific education. Advanced courses build on the knowledge acquired in math, science, and introductory engineering science courses. Concentrators are encouraged to complete the common prerequisite course sequence in their first two years at Harvard. This includes Math or Applied Mathematics, Life Sciences and Chemistry, Physics, and Engineering Sciences 53 (Quantitative Physiology). The technologies that engineers create are changing at an amazing rate, but the fundamentals of engineering that enable

these advances remain constant. Our curriculum emphasizes a solid background in the chemical and biological aspects of the Biomedical Engineering field, with ample opportunity to learn about state-of-the-art technologies. In particular, students will take courses in systems modeling to understand and mathematically model non-linear complex biological systems, thermodynamics to appreciate the basic driving forces underlying biological and chemical systems, the fundamental processes of heat and mass transport that often control the rates of system changes, and molecular to tissue level engineering of biological systems. Through this coursework, students also gain experience in the engineering design process, the engineering activity that requires creative synthesis as well as analysis.

## ADVISING



Students in the engineering concentrations, including Biomedical Engineering (A.B.), Electrical Engineering (S.B.), Engineering Sciences (A.B. & S.B., all tracks), and Mechanical Engineering (S.B.), have a concentration advising team that consists of an Assistant Director of Undergraduate Studies, a Director of Undergraduate Studies, and an individual faculty advisor. In general, the ADUS is the first line of communication for concentration related questions and forms (including signing study cards), and students should plan to meet regularly with both their ADUS and faculty advisor to discuss their plan of study, academic interests, and career goals. Currently enrolled College students outside of engineering, including pre-concentrators, are encouraged to contact any of the Assistant Directors of Undergraduate Studies who are prepared to discuss all of the engineering options in SEAS.

## ALUMNI



Our students can go on to top medical schools and graduate schools in bioengineering. Other students choose to study public policy or public health or economics in graduate school. Some of our students obtain jobs in management consulting, and have been recruited by top firms. Finally, our students can go directly to industry and work as biomedical engineers at medical device or biotechnology firms.



### Gateway Courses Suggested and/or Required Courses



- **ENG-SCI 53:** Quantitative Physiology as a Basis for Bioengineering, fall
- **LS 1a:** An Integrated Introduction to the Life Sciences, fall (LPS A can also meet this requirement)
- **Math** (Math 1a, b; Math 21a,b or Applied Math 21a,b)
- **Physics** (Applied Physics 50a,b or Physical Sciences 2,3 or Physical Sciences 12a,b or Physics 15a,b)



### Sample Advanced Courses



- BE 110: Physiological Systems Analysis
- BE 121: Cellular Engineering
- BE 125: Tissue Engineering
- BE 130: Neural Control of Movement
- BE 191: Introduction to Biomaterials
- ENG-SCI 123: Introduction to Fluid Mechanics and Transport Processes



### Sample Thesis Titles



- The Role of Cell Compaction in Radiation Therapy for Breast Cancer
- The MiR-130/301 Family Controls Cellular Survival in Pulmonary Hypertension
- Effects of Matrix Mechanics on Secretion of Leukocyte Chemoattractants From Bone-Marrow Derived Mesenchymal Stromal Cells



### Sample Department Research Opportunities



- Bioinspired robotics and computing
- Biomechanics and motor control
- Biophysics and self-assembly
- Cell and tissue engineering and biomaterials



### Sample Faculty Research and/or Publications



- Stem-cell-based tissue regeneration (Mooney)
- Method to test heart muscle cells made from stem cells and destined for cardiac therapy (Parker)
- Better understanding of self-organization in cells (Needleman)
- Biologically inspired soft exosuit (Walsh)
- Rethinking how we grab and hold onto objects (Smith)
- Resin inks and 3D printing to develop cellular composite materials (Lewis)
- Using bacterial biofilms to produce new self-healing materials (Joshi)
- Robot for positioning ultrasound imaging catheters (Howe)

# CHEMICAL & PHYSICAL BIOLOGY

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Tracks:

Chemical and Physical Biology



## WHO WE ARE

Chemical and Physical Biology (CPB) concentrators are interested in applying quantitative tools, physical concepts, and chemical principles to the study of biology. The concentration is jointly administered by the departments of Chemistry and Chemical Biology and Molecular and Cellular Biology.

## ADVISING



The Assistant Director of Undergraduate Studies (ADUS; Martin Samuels) meets with concentrators and pre-concentrators to discuss course choices, research opportunities, and career planning. The ADUS also signs study cards. In addition, each concentrator is matched with a mentor from the Board of Tutors in Biochemical Sciences. For more information, go to [tinyurl.com/CPB-tutorial-board](https://tinyurl.com/CPB-tutorial-board).

## ALUMNI



Most CPB graduates pursue careers in research. Others have applied their quantitative training and critical thinking skills to pursue careers and further education in fields including business/finance, computer programming, education, engineering, law, and medicine.

**Gateway Courses**  
Suggested and/or  
Required Courses

First semester:

- **LS 1a:** An Integrated Introduction to the Life Sciences: Chemistry, Molecular Biology, and Cell Biology
- OR
- **LPSA:** Life and Physical Sciences A. Foundational Chemistry and Biology
  - **Math** (according to math placement\*)

Second semester:

- **LS 1b:** An Integrated Introduction to the Life Sciences: Genetics, Genomics, and Evolution (spring)
- **PS 1 or PS 11**

Third semester:

- **MCB 60:** Cellular Biology and Molecular Medicine
- **Chem 17:** Organic Chemistry
- \*For a more complete listing, [http://lifesciences.fas.harvard.edu/files/lifesci/files/cpb\\_preconcentrator\\_course\\_sequences\\_0.pdf?m=1439926828](http://lifesciences.fas.harvard.edu/files/lifesci/files/cpb_preconcentrator_course_sequences_0.pdf?m=1439926828)

**Sample Advanced Courses**

- CHEM 110: Small Molecules and Biological Processes
- CHEM 163: Frontiers in Biophysics
- MCB 165: Interplay between Viruses and their Hosts
- MCB 195: Foundations of Systems Biology and Biological Engineering
- COMPSCI 109A: Data Science I
- COMPSCI 171: Visualization
- PHYSICS 141: The Physics of Sensory Systems in Biology
- PHYSICS 220: Fluid Dynamics

**Sample Thesis Titles**

- Social Regulation of Appetite by Oxytocin in Larval Zebrafish
- An Investigation on SMG-8 Suppression on PHA-4 in *C. elegans*
- Characterizing the Specificities of Orthogonal CRISPR-Cas Endonucleases
- Alternating Antibiotic Therapy Can Slow the Evolution of Resistance Through Negative Cross-Resistance
- Thinking Outside the Cell: Nucleic Acid Content of Exosomes and Extracellular Fluid

**Sample Faculty Research and/or Publications**

Adam Cohen

- Fluorescent voltage indicators derived from microbial rhodopsins; rhodopsin photophysics; optical selection and profiling of single cells; synthetic bioelectrical systems

Rachelle Gaudet

- Structural biology of ion channels (e.g., TRP channels) and transporters (e.g., TAP and Nramp)

Sharad Ramanathan

- Controlling the food search behavior in *C. elegans*; germ layer fate choice of embryonic stem cells; all optical interrogation of neural circuits; signal processing by the HOG MAP kinase pathway; genetic drift at expanding frontiers promoting gene segregation; timing variability in an environmentally regulated development decision; specificity in the osmolar and pheromone MAP kinase pathways; designing deformable wireless networks

Victoria D'Souza

- Structural biology of reverse transcription and gene translation in retroviruses such as HIV, Human T-cell leukemia virus (HTLV), and Moloney murine leukemia virus (MLV)

Emily Balskus

- Chemistry of the human microbiota; discovering novel enzymatic reactivity associated with unusual molecular architecture; manipulating biological function with biocompatible chemistry

David Liu

- Evolution and in vivo delivery of proteins that covalently modify genes and gene products; discovery of bioactive synthetic molecules via DNA-templated synthesis and selection; understanding and engineering genome-editing proteins towards new tools and therapeutics

# CHEMISTRY

Tracks: Chemistry

## WHO WE ARE

Chemistry is both a basic science, fundamental to an understanding of the world we live in, and a practical science with an enormous number and variety of important applications. Knowledge of chemistry is fundamental to an understanding of biology and biochemistry and of certain aspects of geology, astronomy, physics, and engineering.

Why study Chemistry at Harvard?

*There are two general factors that make a Harvard chemistry undergraduate education truly unique and potentially transformative: having the opportunity for valuable interactions with thought leaders and pioneers of chemistry and having a guide to help you navigate the rich, and perhaps daunting, resources of Harvard Chemistry. In my three years here, I've found the Professors accessible and attentive; all my interactions with chemistry faculty, as a whole, have been influential; this is all in large part a result of excellent mentoring. I've never felt lost in the sea of potential chemistry courses or completely unsure in terms of how to approach a research opportunity.*

-Senior Chemistry Concentrator,  
David Jaramillo

*I think the faculty is one of the biggest strengths of the undergrad chemistry experience- they are so excited about what they do, and invested in sharing their passion for chemistry with students. I have also found that students tend to be really into the classes, which makes for a more upbeat class experience.*

-Senior Chemistry Concentrator,  
Jen Guidera

*In many ways, chemistry at Harvard is taught like a language rather than a collection of unlinked facts. It is incredibly gratifying to approach a test having memorized very little but be able to puzzle solve your way through all the problems.*

-Senior Chemistry Concentrator,  
Ellie Lin

## ADVISING



All students have the Director of Undergraduate Studies as their academic advisor and once they join a lab they will also have the faculty member with whom they do research as an additional academic advisor. Concentrators can seek advice from any member of the chemistry faculty.

## ALUMNI



Every year about 10-30% of the chemistry seniors apply to graduate school in chemistry. However, because a degree in chemistry is an excellent background for many occupations, most graduates pursue opportunities in related fields such as law, medicine, business, consulting, finance, teaching, environmental science, and other areas of science.

## QUESTIONS?

Gregg Tucci\*, Director of Undergraduate Studies, Concentration Advisor: [tucci@fas.harvard.edu](mailto:tucci@fas.harvard.edu), 617-496-4668 |

George O'Shea\*, Undergraduate Program Coordinator: [oshea@fas.harvard.edu](mailto:oshea@fas.harvard.edu), 617-496-0932 |

\* Study abroad contact

**Gateway Courses**  
*Suggested and/or  
Required Courses*

First year students should enroll in one introductory chemistry course in the fall and one in the spring. These can be chosen from:

- Life and Physical Sciences A: Foundational Chemistry and Biology; fall
- Life Sciences 1a: An Integrated Introduction to the Life Sciences - Chemistry, Molecular Biology, and Cell Biology; fall
- Physical Sciences 10: Chemistry - Quantum and Statistical Foundations of Chemistry; fall
- Physical Sciences 1: Chemical Bonding, Energy and Reactivity - An Introduction to the Physical Sciences; spring
- Physical Sciences 11: Foundations and Frontiers of Modern Chemistry - A Molecular and Global Perspective; spring
- Chemistry 20: Organic Chemistry; spring

**Sample Advanced Courses**

- CHEM 101: Chemical Biology Towards Precision Medicine
- CHEM 105: Advanced Physical Organic Chemistry
- CHEM 110: Small Molecules and Biological Processes
- CHEM 135: Experimental Synthetic Chemistry
- CHEM 160: The Quantum World
- CHEM 161: Statistical Thermodynamics
- CHEM 170: Chemical Biology

**Sample Thesis Titles**

- Unraveling a Thirty Year Old Chemical Enigma: How Does the Kagan Oxidation of Sulfides Produce Only One of Two Possible Mirror-Image Products?
- Development of Selective Small Molecule Inhibitors of the Oncogenic Gain of Function Activity of Isocitrate Dehydrogenase 1
- Crystal Structure Representations for Machine Learning Models of Electronic Properties
- Evaluation of Sterols as an Atmospheric Isotope Proxy for Biogeochemical Applications in Earth History

**Sample Department Research Opportunities**

Students in chemistry may pursue research opportunities with any member of the Department of Chemistry and Chemical Biology as well with faculty in Engineering, Earth and Planetary Sciences, Molecular and Cellular Biology, Organismic and Evolutionary Biology, Physics, Stem Cell and Regenerative Biology and in basic science departments at Harvard Medical School.

**Sample Faculty Research and/or Publications**

- James Anderson:
- Investigates climate change and atmospheric chemistry
- Alan Aspuru-Guzik:
- Focuses on the development and extension of efficient quantum algorithms for quantum simulation of chemical systems.
- Emily Balskus:
- Studies biosynthetic pathways that give rise to natural products with unusual molecular Architectures.
- Roy Gordon:
- Synthesizes chemicals for vapor deposition of metals, semiconductors, superconductors and insulators in energy related research.
- David R Lu:
- Integrates chemistry and evolution to program and illuminate biology.
- Andrew Myers:
- Synthesizes and studies complex molecules of importance in biology and human medicine

## WHO WE ARE

There is exciting science on the somewhat arbitrary and fluid boundary between chemistry and physics. Chemists and physicists often study the same phenomena in slightly different ways, and it is very useful, in the boundary area, to have training in both fields. Recognizing this, the physics department has for many years offered the concentration in Chemistry and Physics. The requirements of the Chemistry and Physics concentration are designed to provide a solid foundation for further study in either or both of these two closely related sciences.

## ADVISING



Students in the Physics and Chem/Phys concentrations automatically have Prof. Howard Georgi (Head Tutor) and Dr. David Morin (Associate Head Tutor) as academic advisors. Additionally, each student is given an individual concentration advisor, chosen from among the faculty; this advisor signs the student's study card. Carol Davis (Undergraduate Student Coordinator) handles many of the administrative and student-life aspects of the concentrations.

## ALUMNI



Concentrators have gone on to graduate work and careers in chemistry, physics, and other quantitative fields. In recent years, the concentration has also attracted many of the most scientifically talented pre-medical students at Harvard. In addition, the intellectual disciplines involved provide a suitable background for careers in many different professions.

## Gateway Courses Suggested and/or Required Courses

- Life Sciences 1a or Physical Sciences 1 is useful as a general introduction to Chemistry for students without a strong high-school background.
- Physical Sciences 10 is strongly recommended for students interested in the Chemistry and Physics concentration, because it combines statistical mechanics and quantum mechanics, two of the most important topics in physics and chemistry, at an accessible level.
- Most Chemistry and Physics students will begin their physics program with mechanics, in Physics 15a or 16, and continue with Physics 15b and c (in either order). However, it is also possible to get started by taking Physical Sciences 12a/b or AP50a/b. Students in these courses who are interested in the Chemistry and Physics concentration should consult the Head Tutor or Associate Head Tutor, who will work with them to design an appropriate plan of study.
- Mathematics is an indispensable tool in chemistry and physics, and students will find it very useful to improve their math skills early in their academic careers, by taking two courses at the math 21 level, along with any needed prerequisites.

## Sample Advanced Courses

These include advanced-level courses in a science, engineering sciences, or computer science with significant direct application to chemistry or physics. To count for concentration, these courses should be approved in advance by the Director or Associate Director of Undergraduate Studies.

## Sample Thesis Titles

- Semiclassical Theory of Ultraslow Elastic Collisions of Molecules
- Exploring Chemical Diversity Through Silyl Functionalized Small Molecules
- Self-Assembly of Alginate Microgels

\*Note that many honors chemistry and physics students do not write a thesis, choosing instead a different capstone experience, such as submitting their research for publication or completing an important series of graduate courses.

## Sample Department Research Opportunities

We purposely don't have a centralized list of available projects for two reasons. (1) It is impossible to keep up to date. Jobs get created and taken far too often. (2) Sometimes professors think up projects on the spot (or they just realize that they do in fact have a job for one more undergraduate) when a student contacts them. If a professor isn't on the list, this might give students the false impression that there isn't anything available.

## Sample Faculty Research and/or Publications

Chemistry and Physics advisors are outstanding researchers from both the Chemistry and Physics departments, including: Jim Anderson, Michael Aziz, Adam Cohen, John Doyle, Melissa Franklin, Peter Galison, Lene Hau, Rick Heller, Eric Jacobsen, Daniel Jafferis, Erel Levine, Vinny Manoharan, Masahiro Morii, David Morin, David Nelson, Mara Prentiss, Matthew Reece, Tobias Ritter, Aravinthan Samuel, Christopher Stubbs, Gregory Tucci, David Weitz, Amir Yacoby, and Xiaowei Zhuang.

# CLASSICS

Tracks: *Classical Languages & Literatures*  
*Classical Civilizations*  
*Ancient History (Greek and Roman)*

## WHO WE ARE

The Department of the Classics offers students the opportunity to explore the whole range of Greco-Roman civilization from the Bronze Age through Byzantium and medieval Europe to Modern Greece. Its faculty provide instruction in all the major areas of classical studies, including language and linguistics, literature, archaeology, history, philosophy, and religion. Joint concentrations are welcomed in the conviction that Classics lies at the root of many important academic fields.

Two concentration options are offered within the department: (1) Classical Languages and Literatures, for students wishing to emphasize the study of Greek and Latin literature in the original languages, and (2) Classical Civilizations, for those primarily interested in exploring the connections between Greco-Roman culture and disciplines such as archaeology, history, and philosophy. Concentrators in both tracks are required to acquire knowledge of Greek or Latin, or both, but neither track presumes any prior knowledge of these languages. Both tracks may be pursued as joint concentrations with other departments. A dedicated Joint Concentration in Ancient History (Greek and Roman) is offered in conjunction with the History Department.

## ADVISING



The Director of Undergraduate Studies (DUS) serves as the primary academic advisor for every concentrator. Concentrators meet with the DUS at the beginning of each term to discuss course selection, long-term academic planning, internships and research opportunities, and other matters relating to their academic and professional progress. Study cards are signed by the DUS.

## ALUMNI



From the freshman year onwards, students are taught to develop analytical and interpretive skills that are transferable to almost every aspect of human endeavor. Alumni have become actors, archaeologists, architects, archivists, bankers, diplomats, doctors, entrepreneurs, hedge-fund managers, interpreters, journalists, landscape designers, lawyers, librarians, management consultants, museum curators, novelists, poets, politicians, priests, professors, surgeons, teachers, translators, and various other things.

**Gateway Courses**  
Suggested and/or  
Required Courses



- **CLS-STDY 97A:** Greek Culture and Civilization
- **CLS-STDY 97B:** Roman Culture and Civilization
- All introductory courses in Greek and Latin
- All CLS-STDY courses, except CLS-STDY 112
- **CLASARCH 10:** Introduction to the Classical Archaeology of Greek Antiquity

**Sample Advanced Courses**



- CLS-STDY 112: Regional Study - Sicily
- GREEK 113: Aeschylus
- LATIN 112A: History of Latin Literature I
- MEDLATIN 106: Augustine
- MEDGREEK 115: Introduction to Byzantine Greek

**Sample Thesis Titles**



- Study in Madness: The Portrayal of Cambyses II in Herodotus' Histories
- The Relationship between Mathematics and Physics in Hellenistic Writing
- Analyzing Dietary Treatments for Epilepsy: From Galen to Modern Research
- Petronius in the 1920s: Eliot, Fitzgerald, and the Invention of a Modern Arbiter
- Sex, Drugs, and Rock 'n' Roll: Pop Culture Representations of Dionysus

**Sample Department Research Opportunities**



Internships at the Harvard University Art Museums or in Washington, DC at the Center for Hellenic Studies and Dumbarton Oaks; study abroad in J-Term and during the summer; Junior semester in Athens or Rome; excavation at Sardis in Turkey; undergraduate Classics journal, Persephone

**Sample Faculty Research and/or Publications**



- Emma Dench:
- Romulus' Asylum: Roman Identities from the Age of Alexander to the Age of Hadrian
- Paul Kosmin:
- The Land of the Elephant Kings: Space, Territory, and Ideology in the Seleucid Empire
- Gregory Nagy:
- The Ancient Greek Hero in 24 Hours
- Panagiotis Roilos:
- Medieval Greek Storytelling: Fictionality and Narrative in Byzantium
- Richard Thomas and Jan Ziolkowski, eds:
- The Virgil Encyclopedia

# COMPARATIVE LITERATURE

Tracks:

Comparative Literature



## WHO WE ARE

Comparative Literature welcomes students who are interested in studying literature in more than one national and linguistic tradition, students who want to explore literature in relation to other arts and media (e.g., film, music, visual art), and students who seek to formulate an individualized program of study within the arts and humanities. Each Comp Lit student designs, with the guidance of a tutor in the program, a course of study that is centered around a core of courses and one-on-one tutorials that reflects the student's particular areas of interest. Recent students in Comp Lit have focused their studies on fields as far-ranging as Literature and Music, 20th century French literature and film, the graphic novel, translation studies, literature and neurobiology, and contemporary Arabic and Hebrew narrative, to name but a few. Students who thrive in Comp Lit generally have interests in a number of different disciplines and fields within the Humanities and beyond. They also tend to be self-motivated, intellectually adventurous and edgy, and ready to engage in deep thinking about literature and culture.

## ADVISING



Primary advising in the concentration is provided by members of the Comparative Literature Tutorial Board. Each student is assigned an individual advisor. These advisors also sign study cards.

## ALUMNI



Students who graduate with a degree in Comp Lit develop strong skills in writing, research, and critical thinking that translate across professions. They have gone on to careers in a variety of fields: academics, journalism, film, law, medicine, and business, among others. Some past alumni include:

- Elizabeth Brook, 2010, consultant
- Amrita Dani, 2013, Gates Cambridge Scholar
- Monica Eav, 1999, Immigration Lawyer
- Noah Fabricant, 2004, Rabbi
- Dara Horn, 1999, Novelist
- Mark McGurl, 1989, Professor of English, Stanford
- B.J. Novak, 2001, Actor
- Scott Rubin, 1985, Director of Communications, Europe, Middle East, & Africa, Google
- Rashid Sabar, 2005, Portfolio Manager
- Kelefa Sanneh, 1998, Staff Writer, The New Yorker
- A.O. Scott, 1988, Film Critic, The New York Times
- Kevin Stone, 2013, Fulbright Scholar, Germany
- Diane Wachtell, 1985, Executive Director, The New Press
- Rachel Weinerman, 2003, Physician

## QUESTIONS?

Sandra Naddaff\*, Director of Undergraduate Studies: [snaddaff@fas.harvard.edu](mailto:snaddaff@fas.harvard.edu), 617-495-5650 |

Isaure Mignotte, Program Coordinator: [mignotte@fas.harvard.edu](mailto:mignotte@fas.harvard.edu), 617-495-4186 |

\* Study abroad contact

**Gateway Courses**  
**Suggested and/or**  
**Required Courses**



- **COMPLIT 97:** Sophomore Tutorial
- **COMPLIT 110:** Literary Theory in Comparison - An Introduction
- **COMPLIT 103:** Grounds for Comparison
- Any course listed under the Comparative Literature rubric provides an excellent way of exploring the concentration. Comparative Literature 103: Grounds for Comparison is designed to be a gateway course, but all students are encouraged to enroll in any of the Comparative Literature 100 classes to get a sense of what the study of comparative literature entails.
- Students might also consider enrolling in a course from any of the departments in the Humanities that address their interests, e.g., English; any non-English literature department (e.g., Slavic, Romance Languages, East Asian Languages, Near Eastern Languages); Philosophy; Visual and Environmental Studies; and Women, Gender, and Sexuality.
- Another great option is a course in a non-English literature or a language course in the foreign language the student wishes to study.



**Sample Advanced Courses**



- COMPLIT 109: On Translation
- COMPLIT 119: Poetry in Flux-Dance Afoot
- COMPLIT 127: Comparative Modernisms
- COMPLIT 134: World Cinema
- COMPLIT 179: Ghostwriters and Ventriloquists Postwar Jewish American Culture



**Sample Thesis Titles**



- The Opposite of Television: David Foster Wallace on the Relationship between Television and Fiction
- Ineffable Experience: Girlhood Trauma in Persepolis and A Child's Life
- Practicing Literature and Reading Medicine in Guadeloupe: An Approach to Ethics
- Industrial Storytelling: Serialization, Television, and the Novel (on "The Wire" and selected novels of Emile Zola)
- Transformed Voices: Projecting Fantasies of the Transgender Other in Middlesex, Habibi, and Immaculate Conception



**Sample Department Research Opportunities**



SHARP (Summer Humanities and Arts Research Program) Fellowships



**Sample Faculty Research and/or Publications**



David Damrosch:

- Research Fields: Bible and ancient Near Eastern literatures; modern European and global Anglophone literatures.
- Publication: *"The Buried Book: The Loss and Rediscovery of the Great Epic of Gilgamesh"* (2007)

Verena Conley:

- Research Fields: Critical and Cultural Theory; Politics and Aesthetics; Ecology and Technology; Contemporary Fiction and Film
- Publication: *Ecopolitics: The Environment in Post-Structural Thought* (1997)

John Hamilton:

- Research Fields: Music and Language; 18th and 19th century German and French Literature; Hermeneutics and the Poetics of Classical Tradition
- Publication: *Music, Madness, and the Unworking of Language* (2008)

# COMPUTER SCIENCE

Tracks:            *Computer Science*  
                       *Mind, Brain, Behavior*  
                       *Joint concentration option*

## WHO WE ARE

Computer science is a dynamic, versatile field, full of open problems and opportunities for creative invention. The concentration in computer science is designed to teach students skills they will use immediately and also ideas they will exploit in the future in ways we cannot even imagine today. Computer scientists must know basic mathematics; they must understand something about the abstract models that describe universal computational phenomena; and they must have some knowledge of how computers are currently designed, programmed, and used. Concentration requirements are intended to ensure balanced programs with emphasis on subjects that will endure rapid technological change. At the same time, the requirements permit students to choose courses in computer science and related fields that reflect individual interests and preferences.

## ADVISING



The first point of contact for students interested in a Computer Science Concentration or Secondary Field is the Director of Undergraduate Studies. The DUS and the student develop a Plan of Study that meets relevant requirements and addresses the student's particular interests and needs. Once the student joins the program, the DUS assigns the student a faculty advisor, who will be the person with whom the student meets for advising and to approve the student's course choices. The DUS is always available to any computer science undergraduate for questions about concentration requirements, for petitions for exceptions to rules, or for any kind of open-ended discussion the student might like to initiate about life at and beyond Harvard. For much more information in an informal and readable style, see our "Unofficial Guide" at [guide.cs50.net](http://guide.cs50.net).

## ALUMNI



Many students go on to work in the computer technology field at the leading software companies such as Facebook, Google, Pixar and Microsoft. Our entrepreneurial students have gone on to found technology companies (including Facebook and Microsoft). Students also apply their expertise in the financial industry. Students interested in research consistently go on to pursue PhDs at the top programs in the country. As computer science is such an integral part of so many aspects of our world, students can find a computer science background helpful in many other fields and careers such as law, government, non-profits, or medicine. Read about some of the computer science alumni at: [seas.harvard.edu/programs/computer-science-careers-alumni](http://seas.harvard.edu/programs/computer-science-careers-alumni)

### QUESTIONS?

Harry Lewis\*, Director of Undergraduate Studies: [cs-dus@seas.harvard.edu](mailto:cs-dus@seas.harvard.edu), 617-496-2424 |

Kathy Lovell, Undergraduate Academic Program Administrator: [klovell@seas.harvard.edu](mailto:klovell@seas.harvard.edu), 617-496-1524 |

\* Study abroad contact

## Gateway Courses Suggested and/or Required Courses

- All courses below count for concentration credit unless otherwise noted. See the *Harvard College Handbook* for details about requirements.
- **CS 1:** Great Ideas in Computer Science (spring). An introduction to discoveries and paradigms of the field. Does not count for the concentration.
- **CS 50:** Introduction to Computer Science I (fall). Open to all, no prerequisites. Best to take this course freshman year, though it is possible to take it as a sophomore and still complete any of the concentration tracks.
- **CS 51:** Introduction to Computer Science II (spring). Abstraction and design in computation, usually taken after CS 50.
- **CS 61:** Systems Programming and Machine Organization (fall). For those who have the prerequisite C programming experience.
- **CS 20:** Discrete Mathematics for Computer Science (spring). An optional spring term course to prepare students for courses in theoretical computer science such as CS 121 and 124.
- **CS 121:** Introduction to the Theory of Computation (fall). For those who have the prerequisite background in formal mathematics.
- Computer Science ordinarily requires mathematics to the level of *Mathematics 21a* and *21b* or equivalent. Students should follow Mathematics placement advice in judging where to start in the Mathematics sequence.

## Sample Advanced Courses

- CS 124: Data Structures and Algorithms
- CS 136: Economics and Computation
- CS 143: Computer Networks
- CS 152: Programming Languages
- CS 161: Operating Systems
- CS 179: Design of Usable Interactive Systems
- CS 181: Machine Learning
- CS 189: Autonomous Robot Systems

## Sample Thesis Titles

- Piggybacking Robots: Overtrust in Human-Robot Security Dynamics
- Geometry in Algorithms and Complexity: Holographic Algorithms and Valiant's Conjecture
- Not So Incognito: Exploiting Resource-Based Side Channels in JavaScript Engines

## Sample Department Research Opportunities

A description of CS research opportunities for undergrads can be found by searching for 'Harvard CS undergrad research'.  
 Research areas: Architecture; Artificial Intelligence (Computational Linguistics, Machine Learning, Multi-Agent Systems, Robotics); Computational and Data Science; Computational Neuroscience; Economics and Computation; Graphics, Vision and Interaction; Information and Society (Privacy and Security); Programming Languages; Systems, Networks and Databases; Theory of Communication; Theory of Computation

## Sample Faculty Research and/or Publications

- *Balanced Allocations and Double Hashing* (Mitzenmacher)
- *Using Prediction Markets to Estimate the Reproducibility of Scientific Research* (Chen)
- *Sparse Coding Trees with Application to Emotion Classification* (Kung)
- *Precise, Dynamic Information Flow for Database-Backed Applications* (Chong)
- *The Scalable Commutativity Rule: Designing Scalable Software for Multicore Processors* (Kohler)
- *An Interaction-Aware, Perceptual Model for Non-Linear Elastic Objects* (Pfister)
- *Bayesian Nonparametric Methods for Partially-Observable Reinforcement Learning* (Doshi-Velez)
- *Programmable Self-Assembly in a Thousand-Robot Swarm* (Nagpal)

## WHO WE ARE

Earth and Planetary Sciences encompass a broad range of science disciplines, technology, and applications to environmental and economic endeavors. Studies of the Earth involve students in the development and application of new tools and technologies such as space probes and sophisticated instruments, as well as field work in remote and challenging settings.

These are intellectually exciting times for the Earth and planetary sciences, which are of unprecedented importance to contemporary society. Our environment is increasingly subject to stresses placed upon it. As never before, we must understand the consequences of human activities for the Earth's atmosphere, the oceans, the solid Earth, and the organisms that live on it. Exploring for, extracting, and conserving natural resources are vital to the global political economy. We must mitigate the ill effects of earthquakes, landslides, volcanic eruptions, and severe weather by learning to predict their time and place.

Because the Earth's natural systems (atmosphere, ocean, biosphere, solid earth) are interconnected, the training of Earth scientists broadly spans the boundaries between biology, chemistry, engineering, physics, mathematics, and the Earth sciences themselves. This intellectual breadth is not always possible to acquire in a "pure" science program. The department trains students rigorously in the basic sciences, typically in the same foundational courses as students in Astrophysics, Chemistry, Engineering Sciences, and Physics. These foundational courses are followed by upper-level courses that focus on disciplines within Earth and planetary science. Within the EPS department students may focus on atmospheric and ocean science, energy and climate, environmental geoscience, geobiology, geochemistry, geology, planetary science, and solid earth geophysics.

Alternatively, many students choose to take courses across these disciplines.

## ADVISING



All concentrators and secondary field students are assigned a faculty advisor with whom they meet at least twice per year. These assignments can change as students' interests shift. Additional concentration advising is provided by the Co-Head Tutors (Jerry Mitrovica and Francis Macdonald) and the Academic Programs Administrator (Chenoweth Moffatt).

## ALUMNI



An important goal of our educational mission is to maintain flexibility, ensuring that we serve the needs of students destined for careers in science as well as those destined for other pursuits. Career opportunities in Earth and planetary sciences are diverse, spanning the private, government, and academic sectors. Government service includes research and administration in NASA, the National Oceanographic and Atmospheric Agency, the US Geological Survey, the Environmental Protection Agency, and many other agencies and departments. Earth scientists work in and direct a number of oil and mineral exploration and production companies. There also are abundant opportunities in the academic world. Many opportunities continue to grow for entrepreneurs who build companies specializing in resources, natural hazards, waste repositories and cleanup, and environmental impact. In addition to scientific career paths, an undergraduate degree in Earth and Planetary Sciences is an excellent background for continuing study in law, business, public administration, and medicine. Many former concentrators have found that their studies in EPS have helped prepare them for careers in both anticipated and unexpected ways:

- *"My background in Earth science has allowed me to make designs that meld with the land and the natural environment."* (Landscape architect)
- *"Subsequently, I found myself transitioning from academia back to finance, and now I am a portfolio manager overseeing a book of complex investments in the natural resource, energy, and commodity space."* (Portfolio manager)
- *"Policymakers are constantly challenged to design regulations and programs based on their interpretation of scientific results, and EPS is an excellent foundation for this work in dynamic fields of energy, climate, and environmental policy."* (Chief policy advisor for sustainability)

**Gateway Courses**  
*Suggested and/or Required Courses*

- EPS 10: A Brief History of the Earth
- SPU 12: Natural Disasters (spring)
- SPU 14: How to Build a Habitable Planet (fall)
- SPU 25: Energy and Climate - Vision for the Future (spring)
- SPU 29: Climate-Energy Challenge (fall)
- SPU 30: Life as a Planetary Phenomenon (spring)
- SPU 31: Energy Resources and the Environment (bracketed spring 2017)

**Sample Advanced Courses**

- E-PSCI 50: The Fluid Earth - Oceans, Atmosphere, Climate and Environment (spring)
- E-PSCI 52: Global Geophysics - A Primer (fall)
- E-PSCI/OEB 56: Geobiology and the History of Life (spring)

**Sample Thesis Titles**

- Sea level change since last glacial maximum
- Characterizing the provenance of pre-Mississippian stratigraphy in the North Slope subterranean of Arctic Alaska: implications for Arctic tectonic reconstructions and the initiation of the Hirnantian glaciation
- Refining an Inverse Atmospheric Model for Estimating CO2 Emissions in Boston
- On the origin of micaceous spherules from the Neoproterozoic Bonahaven Formation, Islay, Scotland
- Cause of the Pause: Exploring the 21st Century Global Warming Hiatus

**Sample Department Research Opportunities**

EPS's research environment is an unparalleled resource for undergraduate education. During the academic year and summer, concentrators may work with faculty and graduate students on projects as a research or field assistant in the context of course work or as part of an undergraduate research project.

Recent examples include:

- Traveling to central and southern Sweden to measure sections of Ordovician age carbonates and siliciclastic rocks and collect samples for a senior thesis.
- Enrolling in EPS 74 to participate in Cornell's summer field course to study the regional geology and uplift history of the Argentinian Andes.
- Conducting analysis and research related to earthquake research in California and faults and folding in the Himalayas
- Taking in situ leaf chamber measurements of photosynthesis light curves across different tree species in the Harvard Forest

**Sample Faculty Research and/or Publications**

Peter Huybers:

- McKinnon '10 PhD '15, Rhines PhD '13, Tingley PhD '09, and Huybers *Long-lead predictions of eastern United States hot days from Pacific sea surface temperatures*, Nature Geoscience, 2016.

Zhiming Kuang:

- Boos, W. R., Z. Kuang, *Dominant control of the South Asian monsoon by orographic insulation versus plateau heating*, Nature, 463, 218-222, (2010).

Francis Macdonald PhD '09:

- Rooney, A.D., Strauss, J.V. PhD '15, Brandon, A.D., Macdonald, F.A., 2015. *A Cryogenian Chronology: Two long-lasting, synchronous Neoproterozoic Snowball Earth glaciations*, Geology, 43(5), p. 459-462.

Jerry Mitrovica:

- Mitrovica, J.X., C.C. Hay, E. Morrow, R.E. Kopp, M. Dumberry PhD '04, and S. Stanley PhD '04, *Reconciling past changes in Earth rotation with 20th century global sea-level rise: Resolving Munk's enigma*, Science Advances, 1, 2015.

# EAST ASIAN STUDIES

Tracks: *East Asian Studies*  
*Joint East Asian History track*  
*Area or Language track (secondary*  
*joint concentrators)*

## WHO WE ARE

East Asian Studies is an interdisciplinary concentration that seeks to develop a critical understanding of the human experience in East Asia. A concentrator develops language skills, participates in a series of tutorials, and selects from a rich offering of lecture courses and seminars. The program allows students to learn about East Asia as a whole and also to pursue specialized study of one East Asian society: China, Japan, Korea, or Vietnam. Study abroad is strongly encouraged and supported. The concentration offers a broad range of possibilities for students interested in the social sciences or the humanities. Students in EAS may take courses that study modern East Asia through approaches drawn from political science, sociology, anthropology, economics, and psychology. Students with an interest in the humanities can choose to study modern and pre-modern East Asia from the perspectives of history, literature, art history, cultural studies, religion, philosophy, and folklore. The sophomore tutorial introduces a variety of perspectives from the humanities and the social sciences, and offers concentrators a forum to interact with Harvard's East Asia faculty. At the end of the sophomore year, students typically decide on a disciplinary or area focus or choose a comparative perspective (involving one or more than one area or discipline) in consultation with the Director of Undergraduate Studies and their assigned faculty advisor. Juniors take an EAS 98 offering or an approved course to serve as their junior tutorial. Many spend the summer in East Asia doing research or internships. Honors candidates usually spend the senior year researching and writing the honors thesis.

## ADVISING



Students in EAS can request a faculty advisor or have one assigned to them. The Assistant Director of Undergraduate Studies for Sophomores, Juniors, or Seniors signs study cards. Senior thesis writers work with both a faculty advisor and a graduate student advisor.

## ALUMNI



EAS alumni go on to an amazing range of careers. Is concentrating in East Asian Studies compatible with finding a rewarding job after graduation? The simple answer is yes. With the extraordinary dynamism of East Asia today, knowledge of the region and one or more of its languages is hugely attractive to employers. Some of our graduates continue towards an M.A. or PhD degree with a view towards pursuing careers in teaching and research, but the majority find jobs in consulting, finance, business and international trade, government service, law, medicine and many other fields. The network of Harvard's East Asia graduates is trans-global. Even if your professional future is not in Asia, the concentration will equip you with unusual intellectual opportunities and language skills. Graduating with a degree in EAS demonstrates to potential employers that you have initiative, curiosity, imagination, and perseverance. These are all qualities highly sought by employers.

*Though it is administratively housed in the division of Arts & Humanities, this department's faculty and curricular offerings bridge both Arts & Humanities and Social Sciences.*

## QUESTIONS?

David Howell\*, Director of Undergraduate Studies: [dhowell@fas.harvard.edu](mailto:dhowell@fas.harvard.edu) |  
Nicole Escolas\*, Undergraduate Coordinator: [eas@fas.harvard.edu](mailto:eas@fas.harvard.edu), 617-495-8365 |

\* Study abroad contact

**Gateway Courses**  
Suggested and/or  
Required Courses

- Students interested in a concentration in East Asian Studies should begin language study (Chinese, Japanese, Korean, or Vietnamese) in the first semester of their freshman year, if possible.
- EAS concentrators are required to take a *historical survey course* of the region they are studying
- China: Societies of the World 12, China: Traditions and Transformations (fall)
- Japan: Societies of the World 13, Japan in Asia and the World (spring)
- Korea: Societies of the World 27, The Two Koreas or Korean 111 (spring)
- **EAS 97ab** may be taken freshman year by students who are strongly committed to EAS as a concentration or secondary field.

**Sample Advanced Courses**

- JAPNHIST 121: Comparative History of Women and Gender In East Asia up to WWII
- CULTBLF 11: Medicine and the Body in East Asia and in Europe
- EAFM 111: East Asian Media Studies
- CULTBLF 33: East Asian Religions - Traditions and Transformations
- EAFM 140: Anime as Global Popular Culture

**Sample Thesis Titles**

- On Being ‘Lesbian’: Kakefuda Hiroko’s ‘Rezubian’ de are, to iu koto, Translated and In Context
- Acupuncture Points: A Historical and Scientific Analysis
- The Many Facets of Censorship in Modern China: An Examination of a Film Director’s Negotiation Between Restriction and Impact
- Forms of Emptiness: An Exploration of the Intersections between Soto Zen Buddhism and Real Analysis
- The Value of Chinese Wildlife: Domestic and International Representation of the Panda and its Peers

**Sample Department Research Opportunities**

- East Asia Media Ecologies project
- Reischauer Institute of Japanese Studies
- Fairbank Center for Chinese Studies

**Sample Faculty Research and/or Publications**

- Ryuichi Abe:
- Buddhism and visual culture, Buddhism and literature, Buddhist theory of language, history of Japanese esoteric Buddhism, Shinto-Buddhist interaction, and Buddhism and gender.
  - Publication: *Great Fool–Zen Master Ryōkan* (University of Hawai’i Press)
- Wesley Jacobsen:
- *The Transitive Structure of Events in Japanese*
- Sun Joo Kim:
- *Wrongful Deaths: Selected Inquest Records from Nineteenth-Century Korea*
- Shigehisa Kuriyama:
- *The Expressiveness of the Body and the Divergence of Greek and Chinese Medicine*

Tracks: *Economics*  
*Honors Economics*  
*-Thesis Track*  
*-Advanced Course Track*

# ECONOMICS

## WHO WE ARE

Economics is at once broad in its subject matter and unified in its approach to understanding the social world. The Harvard Economics Department aims to teach undergraduate students the basic principles of economics, to introduce them to various sub-fields within economics, and to give them a foundation in understanding and carrying out economics research. Traditionally, economics has focused on understanding prices, competitive markets, and the interactions between markets. Important topics such as monopolies and antitrust, income inequality, economic growth, and the business cycle continue to be central areas of inquiry in economics. Recently, the subject matter of economics has broadened so that economists address a remarkable variety of social science questions. Will school vouchers improve the quality of education? Do politicians manipulate the business cycle? What sort of legal regime best promotes economic development? Why do cities have ghettos? What can be done about grade inflation? Why do people procrastinate in saving for retirement – or in doing their homework? Economics today is a scientific discipline. Bringing their particular perspective to the questions of social science, economists formulate theories and collect evidence to test these theories against alternative ideas. Doing economic research involves asking questions about the social world and addressing those questions with data and clear-headed logic, employing mathematical and statistical tools whenever possible to aid the analysis.

## ADVISING



The Economics Department has extensive advising resources: five economists serve as dedicated Lecturer/Advisors (each holding a PhD in economics). Concentrators are welcome to speak with and have forms signed by any advisor but are encouraged to get to know the advisor associated with their House. The Economics Advising Team welcomes students to their walk-in office hours, 10am-4pm, every weekday during the semester in the Department's home, the Littauer Center.

## ALUMNI



In recent years, more than 85 percent of economics concentrators have sought work immediately after graduation. Economics concentrators go to work in business, politics, social service, teaching, charitable work, and other occupations in proportions not that different from the average Harvard graduate. A somewhat higher percentage of Economics concentrators pursue work in consulting and finance. About 10 percent of economics concentrators proceed straight to further education upon graduation, pursuing law school, medical school, Ph.D. programs, and various master's programs. About three-quarters of economics concentrators will eventually earn some advanced academic or professional degree. Law, business, and public policy degrees are the most common.

## QUESTIONS?

Jeffrey Miron\*, Director of Undergraduate Studies: [miron@fas.harvard.edu](mailto:miron@fas.harvard.edu), 617-495-4129 |  
 Dani Doyle, Undergraduate Program Coordinator: [didoyle@fas.harvard.edu](mailto:didoyle@fas.harvard.edu), 617-495-3247 |

\* Study abroad contact


**Gateway Courses**  
 Suggested and/or  
 Required Courses

- Freshman year (timing suggested)
- **ECON 10a** (fall) and **10b** (spring), Principles of Economics. Students who earned a 5 in AP microeconomics and/or macroeconomics or a 7 on the Higher Level examination toward the International Baccalaureate may skip the relevant semester of Ec 10ab (however, concentrators must replace each skipped semester of Ec 10 with an economics elective).
  - **MATH 1a**. Students who placed out of Math 1a on the Harvard math placement test or who earned a 5 on AP Calculus AB or BC are deemed to have fulfilled this requirement.
  - One of **STAT 100** (fall), **STAT 104** (fall, spring) **STAT 110** (fall), **AM 101** (fall)
- Sophomore year (timing suggested)
- **ECON 1010a** (fall, spring) or **ECON 1011a** (fall), Intermediate Microeconomics
  - **ECON 1010b** (spring) or **ECON 1011b** (spring), Intermediate Macroeconomics
  - **ECON 1123** (fall, spring) or **ECON 1126** (varies), Econometrics
  - **ECON 970** (fall, spring), Sophomore Tutorial


**Sample Advanced Courses**


- ECON 980: Junior Seminars (topics vary each year)
- ECON 1018: Cultural Economics
- ECON 1030: Psychology and Economics
- ECON 1389: Economics of Global Health
- ECON 1410: Public Economics - Designing Government Policy
- ECON 1535: International Trade and Investment
- ECON 1723: Capital Markets


**Sample Thesis Titles**


- Access for All? The Political Economy of Support for Early Childhood Education
- Pay to Play: How Much Are NCAA Football Players Worth to their Universities?
- Exchange Rate and Trade Flows in the Age of Global Value Chains
- The Finance of Fine Art
- Superbugs from Superdrugs: Understanding the Health Impact of Antibiotic Usage in Agriculture: An Economic Approach
- Can India End Extreme Poverty? Analyzing Historical Drivers and Assessing Future Prospects
- Have US Drone Strikes Exacerbated Anti-American Sentiment in Pakistan? Using a New Proxy from Google Trends to Measure Attitudes Towards America Abroad


**Additional Information**


- We have faculty and course offerings on developing countries, economic history, education, the environment, finance, government policy, industrial organization, labor markets, monetary policy, political economics, psychology, trade, and so much more!
- Advising Office Hours with Ec Advisors: Every weekday during the semester.
- Stata Office Hours: Walk-in assistance with data analysis using Stata statistical software.
- Ec Question Center: Walk-in coursework help from ec student tutors
- Ec Faculty-Student Lunches: several opportunities each semester.
- Meetings with Ec Alumni: Every November


**Sample Faculty Research and/or Publications**


- Dale Jorgenson:
- Research focus: information technology and economic growth, energy and the environment, tax policy and investment behavior, and applied econometrics.
- Claudia Goldin:
- Research focus: women in the labor force, economics of higher education, the economic impact of war, immigration, inequality, and technological change.
- David Laibson:
- Research focus: behavioral economics, with emphasis on household finance, macroeconomics, aging, and intertemporal choice.
- Gita Gopinath:
- Research focus: International finance, macroeconomics, monetary unions, and trade.
- Nathan Nunn:
- Research focus: history, development, culture, political economy, and trade, with an emphasis on the long-term impact of historic events on current economic development.

## WHO WE ARE

Electrical Engineering provides the information and communications pathways that link us together, the techniques that allow us to send a multitude of complex information over long distances ever more rapidly, and that allow us to carry out demanding computation on massive amounts of data in ever shorter periods of time. Electrical engineers utilize basic materials properties to craft new devices and systems that will be able to rapidly receive, transmit and store information with ever greater accuracy and efficiency. Harvard's degree in Electrical Engineering is a Bachelor of Science (S.B.) degree that consists of 20 four-credit courses. The Electrical Engineering program has been designed to produce flexibility in the choice of engineering courses, with a small select core of required engineering courses and the early inclusion of a strong hands-on (lab) component. This program was new in the fall of 2012 and was under review for ABET accreditation in 2015-16. Students interested in the electrical engineering area at the Bachelor of Arts (A.B.) level should refer to the Electrical Engineering and Computer Science track of the Engineering Sciences concentration.

## ADVISING



Students in the engineering concentrations, including Bio-medical Engineering (A.B.), Electrical Engineering (S.B.), Engineering Sciences (A.B. & S.B., all tracks), and Mechanical Engineering (S.B.), have a concentration advising team that consists of an Assistant Director of Undergraduate Studies, a Director of Undergraduate Studies, and an individual faculty advisor. In general, the ADUS is the first line of communication for concentration related questions and forms (including signing study cards), and students should plan to meet regularly with both their ADUS and faculty advisor to discuss their plan of study, academic interests, and career goals. Currently enrolled College students outside of engineering, including pre-concentrators, are encouraged to contact any of the Assistant Directors of Undergraduate Studies who are prepared to discuss all of the engineering options in SEAS.

## ALUMNI



Past students have attended graduate school at leading universities in areas ranging from engineering to law to business to medicine, while others have entered the workforce right after graduation, working in small start-up companies, as well as in large engineering companies such as Microsoft and Northrop Grumman, and NASA's Jet Propulsion Laboratory. Other graduates have taken positions at leading consulting, engineering, and business firms.

**Gateway Courses**  
Suggested and/or  
Required Courses



- **ENG-SCI 50:** Introduction to Electrical Engineering, fall
- **ENG-SCI 52:** The Joy of Electronics Part 1, fall and spring (ENG-SCI 153, an upper-level course, can also fulfill this requirement)
- **Math:** (Math 1a,b; Applied Math 21a,b or Math 21a,b)
- **Physics:** (Applied Physics 50a,b or Physical Sciences 12a,b or Physics 15a,b)

**Sample Advanced Courses**



- ENG-SCI 150: Introduction to Probability with Engineering Applications
- ENG-SCI 154: Electronic Devices and Circuits
- ENG-SCI 156: Signals and Systems
- ENG-SCI 158: Feedback Control Systems - Analysis and Design
- ENG-SCI 173: Introduction to Electronic and Photonic Devices
- CS 141: Computing Hardware
- CS 148: Design of VLSI Circuits and Systems

**Sample Thesis Titles**



- A Wrist-Worn On-Body Touch Interaction Device
- Force-Sensitive Rowing Insoles
- SEATURTLE: Sustained Engagement Autonomous Tracking of Underwater RepTiLEs
- Power Monitoring Device for Off-Grid Solar

**Sample Department Research Opportunities**



- Research Areas:
- Circuits and VLSI
  - Computer Engineering and Architecture
  - Control Systems
  - Devices, Nanoelectronics, and Nanophotonics
  - Robotics
  - Signal Processing and Communications

**Sample Faculty Research and/or Publications**



- Examples of recent faculty research:
- Waveguides and non-linear photonic devices (Loncar)
  - Lasers and optical amplifiers in diamond, SiC and GaN (Hu)
  - RoboBees, insect-size robots capable of flying and swimming (Wood)
  - Low-power, highly-accurate deep neural network accelerators (Wei, Brooks)
  - Modeling time-varying functional connectivity in assemblies of neurons (Ba)
  - Impact of nonlinearity on the capacity of communication channels (Tarokh)
  - Realistic computer renderings of translucent materials (Zickler, Pfister (CS))
  - Real-time energy management in microgrids (Li)
  - Matched signal detection on graphs: theory and application to brain imaging data classification (Lu)

# ENGINEERING SCIENCES

## WHO WE ARE

Engineering plays a critical role in enhancing social progress and improving our quality of life. The Engineering Sciences program educates future leaders with the technical background necessary to develop and critically evaluate the next wave of engineering innovations, to apply these innovations to important local and global problems, and to make informed decisions about them in a societal context. Because the Engineering Sciences concentration exists within Harvard's liberal arts environment, it provides students with both the breadth and depth of study necessary to excel in integrative areas of engineering. The curriculum emphasizes a solid background in applied science and mathematical analysis, with ample opportunities to apply these fundamentals to real-world issues and learn about state-of-the-art technologies. Students gain experience in the engineering design process, which is a unique engineering activity that requires creative synthesis and analysis to fulfill specified needs. Harvard offers two degrees in Engineering Sciences: the Bachelor of Arts (A.B.) and the ABET-accredited Bachelor of Science (S.B.). The A.B. program requires 14-16 four-credit courses and the S.B. program requires 20 four-credit courses. The Engineering Sciences A.B. program has tracks in five engineering areas: biomedical sciences and engineering; electrical and computer engineering; engineering physics; environmental science and engineering; or mechanical and materials science and engineering. Students in the Engineering Sciences S.B. concentration typically specialize in one of two tracks: bioengineering or environmental science and engineering.

Students in the bioengineering tracks of the A.B. or S.B. programs apply fundamental principles of biology, chemistry, physics, and mathematics to analyze and design novel biological systems. Bioengineering naturally has applications in healthcare, but can also incorporate energy and sustainability. The A.B. track offers students more flexibility to explore interests in biology and chemistry, while the S.B. track provides more engineering fundamentals, including design. The goals of the A.B. in Engineering Sciences on the biomedical sciences and engineering track and the A.B. in Biomedical Engineering, are similar, but the former contains more engineering

courses, while the latter contains more biology and chemistry courses. Students in the environmental science & engineering tracks of the A.B. or S.B. programs study the fundamental processes and technologies underlying environmental systems. Students apply these principles to develop solutions to complex environmental problems and to mitigate human impact on the environment. The A.B. track offers students the opportunity to study complementary disciplines from other natural and social sciences, while the S.B. track provides a broader basis in engineering fundamentals and design. Students interested in learning more about the other engineering areas should refer directly to the Biomedical Engineering (A.B.), Electrical Engineering (S.B.), or Mechanical Engineering (S.B.) concentrations, which are also listed in this handbook.

## ADVISING



Students in the engineering concentrations, including Biomedical Engineering (A.B.), Electrical Engineering (S.B.), Engineering Sciences (A.B. & S.B., all tracks), and Mechanical Engineering (S.B.), have a concentration advising team that consists of an Assistant Director of Undergraduate Studies, a Director of Undergraduate Studies, and an individual faculty advisor. In general, the ADUS is the first line of communication for concentration related questions and forms (including signing study cards), and students should plan to meet regularly with both their ADUS and faculty advisor to discuss their plan of study, academic interests, and career goals. Currently enrolled College students outside of engineering, including pre-concentrators, are encouraged to contact any of the Assistant Directors of Undergraduate Studies who are prepared to discuss all of the engineering options in SEAS.

## ALUMNI



Concentrators in Engineering Sciences learn how to think critically and develop innovative solutions to a variety of problems, and students can use these skills to address a wide range of real-world issues. Past students have attended graduate school at leading universities in areas ranging from engineering to law to business to medicine, while others have entered the workforce right after graduation with positions at leading consulting, engineering, and business firms.

**QUESTIONS?** Zhiming Kuang, Director of Undergraduate Studies in Engineering Sciences: [es-dus@seas.harvard.edu](mailto:es-dus@seas.harvard.edu), 617-495-2354 | Frank Keutsch, Director of Undergraduate Studies in Environmental Science and Engineering: [keutsch@seas.harvard.edu](mailto:keutsch@seas.harvard.edu), 617-495-1878 | Linsey Moyer\*, Assistant Director of Undergraduate Studies in Biomedical Engineering: [lmoyer@seas.harvard.edu](mailto:lmoyer@seas.harvard.edu), 617-496-2840 | Patrick Ulrich\*, Associate Director of Undergraduate Studies in Environmental Science and Engineering: [pulrich@seas.harvard.edu](mailto:pulrich@seas.harvard.edu), 617-496-0542 | Chris Lombardo\*, Associate Director of Undergraduate Studies in Electrical and Mechanical Engineering: [lombardo@seas.harvard.edu](mailto:lombardo@seas.harvard.edu), 617-496-5185 | Kathy Lovell, Undergraduate Academic Programs Administrator: [klovell@seas.harvard.edu](mailto:klovell@seas.harvard.edu), 617-496-1524 | \* Study abroad contact

## Gateway Courses

*Suggested and/or  
Required Courses*

- **ENG-SCI 6:** Introduction to Environmental Science & Engineering, spring. Required for environmental tracks.
- **ENG-SCI 50:** Introduction to Electrical Engineering, fall
- **ENG-SCI 51:** Computer-Aided Machine Design, fall and spring
- **ENG-SCI 53:** Quantitative Physiology as a Basis for Bioengineering, fall. Required for bioengineering tracks.
- **Math** (Math 1a,b; Applied Math 21a,b or Math 21a,b). Required for all tracks.
- **Physics** (Applied Physics 50a,b or Physical Sciences 12a,b or Physics 15a,b). Required for all tracks.
- **Life Science** (LS 1a or LPSA) and/or **Chemistry** (PS 1 or 10 or 11). Required for some tracks; see *College Handbook* for details.

## Sample Advanced Courses

- BE 125: Tissue Engineering
- BE 191: Introduction to Biomaterials
- ENG-SCI 123: Introduction to Fluid Mechanics and Transport Processes
- ENG-SCI 133: Atmospheric Chemistry
- ENG-SCI 161: Applied Environmental Toxicology
- ENG-SCI 163: Pollution Control in Aquatic Ecosystems
- ENG-SCI 176: Introduction to MicroElectro-Mechanical System
- ENG-SCI 227: Medical Device Design

## Sample Thesis Titles

- Cardiac Catheter Brace for Minimally Invasive Surgery
- Bad Apples: A Surface Pesticide Detector
- Methyl Mercury Model for Muskrat Falls, NL
- Wearable Exosuit Device to Assist Upstairs Walking for FSH Muscular Dystrophy Patients
- Refillable Vascular Grafts Using DNA Toe-hold Exchange

## Sample Department Research Opportunities

- Bioengineering: Bioinspired Robotics and Computing; Biomechanics and Motor Control; Biophysics and Self-Assembly; Cell and Tissue Engineering and Biomaterials
- Electrical Engineering (see Electrical Engineering concentration entry for details)
- Environmental Science and Engineering; Atmospheric and Climate Measurements and Modeling; Energy and Environmental Technologies; Environmental Chemistry and Microbiology; Instrumentation and Field Measurements; Oceans and Geophysics; Pollution Monitoring
- Materials Science and Mechanical Engineering (see Mechanical Engineering concentration entry for details)

## Sample Faculty Research and/or Publications

- Examples of recent faculty research:
- Artificial pancreas device for type 1 diabetes (Doyle)
  - Local and regional efforts can have significant effects on atmospheric mercury (Sunderland)
  - Multimaterial 3D printing via active mixing and switching printheads (Lewis)
  - Direct mechanical stimulation to repair severely damaged skeletal muscles (Mooney, Walsh)
  - Methane emissions in Arctic cold season higher than expected (Wofsy)

# ENGLISH

## WHO WE ARE

“We like books,” explains Professor Stephen Burt. “We also like collections of letters and manuscripts and recitations of poems and stage plays. We even like tweets and sometimes films and videos. We study all of those things in their contexts. We study what goes on inside them, and we look at the people who made and continue to make them.” The undergraduate program introduces students to the full breadth of imaginative literature written in the English language from the eighth century to its more recent dispersal around the globe. Whether engaged with literary giants such as Chaucer, Shakespeare, Dickinson, Keats, and Woolf or in exploration of less famous authors, students in the English program have a rare opportunity to combine aesthetic pleasure, intellectual stimulation, and ethical deliberation in their plan of study. Concentrators explore the discipline by way of our three Common Ground classes, in addition to seminars, tutorials, workshops, lecture courses.

## ADVISING



The English Department is committed to providing high quality advising to undergraduate concentrators, prospective concentrators, and any Harvard student interested in the study of English literature. We assign each sophomore, junior, and senior concentrator to a faculty adviser, with whom they meet to discuss a pathway through the program, their academic and future goals, and course options. All concentrators are encouraged to visit other members of the English faculty during scheduled office hours. The staff of the Undergraduate Program is always available during regular business hours to discuss specific questions regarding the program. Each house has a dedicated English peer advisor; we'll be happy to put you in contact with a current English concentrator to get your questions answered, student-to-student.

## ALUMNI



Graduates of the English program regularly move into rewarding careers in law, advertising, marketing, consulting, finance, real estate, journalism, writing, publishing, education, medicine and many others. A moment's reflection confirms the central need for sustained, critical, interpretive reading in many professions. Interpretive skill is often life's critical navigational tool, and we teach it. It's no wonder that law schools and medical schools love English graduates. Visit our website and check out the “Why English?” section for alumni features and career figures.



## Common Ground Courses



Students are welcome to enroll in or apply for admission to any English course. (Our Common Ground courses and seminars have capped enrollments. Creative writing workshops are by application only and are capped at 12 students.) Any course taught by an English Department faculty member, including our courses in General Education, count for concentration credit. Check out the courses listed here and on our website, or come talk to us about where to find your favorite authors in our classrooms.

**COMMON GROUNDS COURSES**, offered each term:

Arrivals (English 40-49): an introduction to British literary history

Poets (English 50-59): an introduction to reading and writing about poetry

Migrations (English 60-69): an introduction to American and world literatures

### FALL 2016

- AI 20: Poems, Poets, Poetry
- English 168d: Postwar British and American Fiction
- English 190we: David Foster Wallace
- English 195x: Contemporary African American Literature

### SPRING 2017

- AI 12: Poetry in America
- English 111: Epic
- English 178x: American Novel from Dreiser to the Present
- English 192: Political Theatre and the Structure of Drama



## Creative Courses



Workshops are offered each term in fiction, non-fiction, journalism, poetry, playwriting, and screenwriting. Admission is by application only; applications are always due on the first day of term.



## Sample Thesis Titles



### Critical

- Alvarez, Díaz, and the Politics of the Self in Contemporary Latino/a Fiction
- Another Castle: The Stolen Princess Narrative in Medieval Literature and Video Games
- Insiders, Outsiders, and the Literature of the 1972 Presidential Campaign
- Writing Out of Exile: James Joyce and David Foster Wallace



## Continued...



### Creative

- How to Stay: Essays on Traveling and Leaving Literature in Place
- Valparaíso: A Novel
- Visions of the Daughters of Albion: A Musical Drama in Two Acts



## Sample Department Research Opportunities



- Concentrators may have the opportunity to serve as a research assistant to English Department faculty. At the beginning of each semester, the Undergraduate Office will circulate any RA postings to concentrators. Students are also encouraged to speak directly with their professors about research opportunities.
- Senior thesis writers are eligible to apply for summer and winter research funding through the department. Senior honors concentrators are also encouraged to apply for funding for postgraduate traveling and research experiences through the Le Baron Russell Briggs Traveling Prize.
- We encourage concentrators to seek out other research opportunities through The Office of Undergraduate Research and Fellowships (URAF). Specifically, the Summer Humanities and Arts Research Program (SHARP) is a 10-week summer immersion experience which offers many different opportunities for undergraduates to engage in formative and substantive humanities and arts-based research.



## Sample Faculty Research and/or Publications



Stephen Greenblatt

- *Will in the World: How Shakespeare Became Shakespeare*

Jamaica Kincaid

- *The Autobiography of My Mother: a Novel*
- *Henry Louis Gates, Jr.*
- *Finding Your Roots* (PBS)

Leah Price

- *Unpacking My Library: Writers and their Books*

Ju Yon Kim

- *The Racial Mundane: Asian Performance and the Embodied Everyday*

Jorie Graham

- *From the New World: Poems, 1976-2014*

Louis Menand

- "Books as Bombs", "Nukes of Hazard," "The Iron Law of Stardom" (in *The New Yorker*)

Deidre Lynch

- *Janeites: Austen's Disciples and Devotees*

## WHO WE ARE

The concentration in Environmental Science and Public Policy (ESPP) is designed to provide a multidisciplinary introduction to current challenges and issues of the environment. It is founded on the premise that the ability to form rational judgments concerning many of the complex challenges involving the environment that confront today's society requires both an understanding of the underlying scientific and technical issues and an appreciation for the relevant economic, political, legal, historical, and ethical dimensions. All students have to satisfy a core of requirements in the physical, biological, and social sciences and mathematics. In consultation with their concentration advisor, students also develop an individual plan of study for a series of advanced courses around a particular field of specialization. Through their field of specialization, students develop expertise in a particular field of study relating to the environment.

In the junior year, students take one or more seminars to complement their field of specialization. The seminars are envisaged as a central integrating component of the concentration. The seminars cover a number of current environmental issues, comprehensively and in depth. They are taught by faculty from a number of departments in the Faculty of Arts and Sciences and from several of the professional schools, including the Kennedy School of Government, the School of Public Health, and the Graduate School of Design. Topics covered change from year to year, but have included policy issues relating to environmental health, ecology and land use, renewable energy, conservation and biodiversity, and environmental crises, climate change and population flight.

In the senior year, students undertake a capstone project in which they conduct an in-depth examination of a particular environmental issue consistent with their field of specialization, applying skills and knowledge gained in their courses and tutorial experiences. For students wishing to be considered for honors, the capstone project consists of a two-four-credit course senior thesis, while for non-honors students the typical requirement is a one-four-credit course senior term-paper or equivalent.

Our concentrators appreciate the variety and flexibility of course requirements and their close interactions with faculty. Concentrators also enjoy

being in the field, and we offer opportunities for concentrators to conduct work in the field in both course and group settings. We also support independent student research under faculty guidance.

The concentration is overseen by a Committee on Degrees functioning as a Board of Tutors including representatives from several other FAS Departments and from other Schools as appropriate to ensure the requisite breadth of the program. The Faculty serve as concentration advisors and as thesis advisors, and are valuable resources for concentrators.

## ADVISING



Concentrators are assigned individual faculty advisors. Assignments are based on the student's interests and their current intended field of specialization. For many students, their interests and planned field of specialization will evolve over time. We view this evolution as an integral part of the ESPP advising process. If desired, students may be subsequently reassigned to an advisor more appropriate for the student's developing field of specialization.

Students are expected to meet individually with their advisor at least once each term to discuss their plan of study and their resulting course selections, research opportunities, and other academic matters. However, students are encouraged to meet with their advisors more often throughout the year as their interests and desired field of specialization develops. The advisor's signature on study cards is required. Students may also seek advice from any member of the ESPP Board of Tutors.

## ALUMNI



Our alumni have followed a variety of career paths. Many of our graduates have pursued graduate/professional school in business, law, medicine, public policy, urban planning, and PhD programs in the natural and social sciences. A number of graduates obtain jobs in consulting or pursue non-profit work; others secure fellowships in the year immediately following graduation. For further information, please see our Alumni profile page: [espp.fas.harvard.edu](http://espp.fas.harvard.edu)

## QUESTIONS?

N. Michele Holbrook, Head Tutor: [holbrook@oeb.harvard.edu](mailto:holbrook@oeb.harvard.edu), 617-496-6995 |

Lorraine Maffeo\*, Undergraduate Program Administrator: [maffeo@fas.harvard.edu](mailto:maffeo@fas.harvard.edu), | 617-496-6995 |

\* Study abroad contact


**Sample Department Research Opportunities**


Harvard University Center for the Environment encourages research and education about the environment and its many interactions with human society. Through a variety of grants and fellowships, the Center supports research related to the environment. By sponsoring symposia, public lectures, and informal student convocations, the Center connects people with an interest in the environment. Research areas include: Architecture and Environmental Design, Arts and Humanities, Business, Law and Policy, Climate, Ecology and Biodiversity, Energy, Food, Agriculture and Nutrition, Human Health, and Social Sciences.


**Sample Faculty Research and/or Publications**


Sheila Jasanoff, Harvard Kennedy School of Government, Pforzheimer Professor of Science and Technology Studies

- Research Interests: The role of science and technology in the law, politics, and policy of modern democracies, with particular attention to the nature of public reason

Paul Moorcroft, Department Organismic and Evolutionary Biology

- Research Interests: Ecological dynamics of terrestrial plant communities and ecosystems; biosphere-atmosphere interactions; ecology of animal movement.
- Publication: Medvigy, D. and P.R. Moorcroft (2012). *"Predicting ecosystem dynamics at regional scales: an evaluation of a terrestrial biosphere model for the forests of northeastern North America."* Phil. Trans. R. Soc. B (2012) 367, 222–235

Daniel Schrag, Department of Earth and Planetary Sciences and John A. Paulson School of Engineering and Applied Sciences

- Research Interests: Geochemical oceanography; stable isotope geochemistry; paleoclimatology; climate change; carbon sequestration; energy technology

Robert Stavins, Harvard Kennedy School Albert Pratt Professor of Business and Government

- Research Interests: Environmental economics, natural resource economics, and related public policy; innovation and diffusion of technology; market-based strategies for future climate policy; international climate agreements.


**Gateway Courses Suggested and/or Required Courses**


**Introductory Courses (one required):**

- ESPP 11: Sustainable Development
- EPS 22: The Fluid Earth - Oceans, Atmosphere, Climate and Environment
- SPU 25: Energy and Climate - Vision for the Future
- SPU 29: The Climate-Energy Challenge
- SPU 31: Energy Resources and the Environment
- SLS 25: Trees, Forests and Global Change

Additionally, students are encouraged to take math and chemistry in their first year


**Sample Junior Seminar Courses**


- ESPP 90E: Conservation Biology
- ESPP 90N: China's Energy Economy - Perspectives from the Past: Challenges for the Future
- ESPP 90Y: World Food Systems and the Environment
- ESPP 90X: Current Issues in U.S. Environmental Law
- ESPP 90Z: Climate Policy - Past, Present and Future


**Sample Thesis Titles**


- Counting Trees: Towards an Economic Criterion for Sustainability
- Climate Change Mitigation and the Electricity Industry: A Critical Look at the Findings of a Major Utility
- Green Guilt: Conceptualizing Environmental Reparations
- Reducing Subsistence Farmers' Vulnerability to Climate Change: The Potential Contributions of Agroforestry in Western Kenya
- Oyster and Seaweed Farming to Improve Coastal Water Quality: Waquoit Bay As A Case Study
- The Globalization of the Environmental Movement and the Birth of Greenpeace International

## WHO WE ARE

Concentrators develop skills for understanding past and present societies and their sub-groups through the study of language, traditional expressive forms and ritualized behaviors, drawing on the methodologies of several humanities and social sciences disciplines. Students focus on how the many phenomena implied by “folklore and mythology” (e.g., folktales, legends, music, dance, rituals, beliefs, customs, law codes, festival celebrations) function at local, regional, and national levels, as well as in daily life; how they are developed, maintained, and used; and how groups define and identify themselves in relation to other groups through and with these expressive forms of behavior. With personalized plans of study with respect to cultures, sub-cultures, time periods, and themes, concentrators conduct independent research on the material, oral, written, or performed forms of folklore and mythology in their areas of specialization (e.g., African, North and South American, Celtic, Chinese, English, German, Greek, Indian, Japanese, Scandinavian, Slavic).

## ADVISING



Concentrators work with individual faculty advisors. They design their special field within the concentration in close collaboration with the Head Tutor or a faculty member of the Committee on Degrees in Folklore and Mythology. Study cards are typically signed by the Head Tutor.

## ALUMNI



Folklore and Mythology alumni have gone on to do most everything any other graduate of Harvard College has, including medical school, law school, graduate school, publishing, journalism, arts management, even investment banking. In fact, one year in the not too distant past, four students graduated with degrees in Folklore and Mythology: one, whose special field was in Medieval Folk Medicine, went on to medical school; another, whose special field was Celtic Studies, went on to law school; a third, whose special field was English poetry, went on to graduate school, pursuing both a PhD in English and an MFA in creative writing; and finally, the fourth, who combined her interest in Folklore and Mythology with Visual and Environmental Studies, went on to make documentary films, and then to graduate school in Psychology. Another recent graduate, whose special field was Animation, worked at Dreamworks for several years, and now is in Stanford Business School. Given Folklore and Mythology’s emphasis on creative and critical thinking as well as cultural analysis, students are prepared for many post-graduate opportunities. Please see our website for a more detailed picture of Life after Harvard with a degree in F&M!

*Though it is administratively housed in the division of Arts & Humanities, this department’s faculty and curricular offerings bridge both Arts & Humanities and Social Sciences.*

 **Gateway Courses**   
Suggested and/or  
Required Courses

- **Culture and Belief 16 (fall):** Performance, Tradition and Cultural Studies: An Introduction to Folklore and Mythology. There are also often Freshman Seminars and General Education classes that can introduce students in the first year to the study of Folklore and Mythology (consult the departmental website for a full listing of these courses).

 **Sample Advanced Courses** 

- FOLKMYTH 106: History of Witchcraft and Charm Magic (Mitchell)
- FOLKMYTH 128: Fairy Tale, Myth, and Fantasy Literature (Tatar)
- FOLKMYTH 176: Tattoo - Histories and Practices (Lufkin)
- FOLKMYTH 172: Quilts and Quiltmaking (Lufkin)

 **Sample Thesis Titles** 

- “‘We Thought it was Dry Land’: Myth and Tall Tale in the Sea Narratives of Baba Batra 73a-74b”
- “There are No Straight Lines: A Collection of Mississippi River Stories Told as Poems”
- “Trickster Visits the White House: Liminality and Political Redefinition in The Onion’s Coverage of the 2012 Presidential Campaign”
- “‘It’s Like Religion, Everybody’s Got an Opinion’: Sherman’s March to the Sea and its Changing Place in the Regional Memory and Folk Traditions of Middle Georgia”
- “Danced Belief: Embodying the Orishas in Matanzas, Cuba”

 **Sample Department Research Opportunities** 

The Viking Studies Program in Scandinavia (Prof. Stephen Mitchell)

 **Sample Faculty Research and/or Publications** 

- Stephen Mitchell:
- *“Leechbooks, Manuals, and Grimoires. On the early History of Magical Texts in Scandinavia,”* Arv. Nordic Yearbook of Folklore, vol. 70, pp. 57-74, 2014.
  - *“Continuity: Folklore’s Problem Child?,”* In Folklore in Old Norse – Old Norse in Folklore, vol. Ed. Daniel Sävborg and Karen Bek-Pedersen. Nordistica Tartuensis, 20. Tartu: Tartu University Press, pp. 34-51, 2014.
  - *“The Mythologized Past: Memory and Politics in Medieval Gotland,”* in Minni and Muninn. Memory in Medieval Nordic Culture, vol. Ed. Pernille Hermann, Stephen A. Mitchell and Agnes S. Arnórsdóttir. Acta Scandinavica 4, Turnhout: Brepols, 2014, pp. 155-74
- Felicity Lufkin:
- *“Folk Art and Modern Culture in Republican China”* (Lexington Books, 2016)
- Maria Tatar:
- *“The Cambridge Companion to Fairy Tales”* (Cambridge Companions to Literature; Cambridge University Press, 2015)
  - *“The Annotated Peter Pan”* (The Annotated Books, W. W. Norton & Co., 2011)

# GERMANIC LANGUAGES & LITERATURES

Tracks:

German Studies

Scandinavian Studies

Joint German and other field



## WHO WE ARE

Our program invites you to explore the languages, literatures, societies and cultures of the German-speaking and Scandinavian regions of Europe: Germany, Austria, Switzerland, Liechtenstein; and Denmark, Iceland, Norway, and Sweden. We offer language courses in German and Swedish as well as tutorials in Danish, Dutch, Norwegian, Icelandic, and Old Norse, all of which provide a gateway to an exciting exploration of the tremendous impact these cultures have had on the development of Western civilization – from the Vikings to the present day. Consider the impact of figures such as Kant, Marx, Nietzsche, Kierkegaard, and Freud on the development of modern thought; of literary giants such as Goethe and Kafka, Ibsen and Strindberg; of the fairytale worlds of Hans Christian Anderson and the Grimm brothers; of the current blockbuster crime fiction of Stieg Larsson; of Berlin as a modern film metropolis and as a center of innovative new art and architecture; and of Bach, Mozart, Beethoven, and Schubert in the classical music tradition. Our highly personalized concentration and secondary field options enable students to combine language study with fields such as film, drama, comparative literature, philosophy, art history, architecture, history, music, and folklore. Students can choose either German Studies or Scandinavian Studies, or they may choose to combine their studies in a joint concentration with another field.

## ADVISING



Students are advised by the Director of Undergraduate Studies, who also signs study cards.

## ALUMNI



Graduates of our program have been successful in fields as diverse as medicine, law, environmental technology and policy, government, investment banking, international consulting and marketing, and education, both in the United States and abroad. Former concentrators have also worked in art galleries and museums, opera houses, publishing houses and journalism, fashion and design, or have undertaken a graduate degree in German or many other fields in the humanities. Many pursue further study or careers in Germany, Austria, Switzerland, or Scandinavia.

**Gateway Courses**  
**Suggested and/or**  
**Required Courses**



Freshmen are encouraged to take language courses in the department at the appropriate level as determined by the Harvard Placement test or their SAT II test. We offer both regular and intensive language courses at the beginning and intermediate level as well as a third-year language sequence in German.

We offer further opportunities for language study through the Harvard Summer School: Intensive intermediate/advanced German in Vienna, Austria, a film-focused program in Berlin, and Germany, and a fully, not merely token, interdisciplinary HSS course on the historical, literary and material culture aspects of the period known as the Viking Age (ca. AD 750-1100) is offered in Scandinavia.

Gateway courses to get you interested:

- German Aa: Beginning German (TBA): Fall 2016
- SCAND xx: Any beginning Nordic language class (e.g., Swedish A, Scand 90R A., Danish, etc.)
- German 176: Staging War - Representations of Violence and Conflict in Drama and Theater (Prof. Michael Auer): Fall 2016
- German 143/History 1265: German Empires 1848-1949 (Prof. Alison Frank Johnson): Fall 2016
- Scandinavian 55: One Hundred Years of Scandinavian Cinema (Dr. Agnes Broomé): Spring 2017
- German 191: Engineering Texts (Prof. Fatima Naqvi): Spring 2017

Advanced gateway courses (*required introduction courses to the 100 level in German*):

- German 101: German Literature, Culture and Society (Dr. Anna Horakova): Fall 2016
- German 102: German Literature, Art and Thought (Prof. Nicole Sütterlin): Spring 2017

Other suggested courses that fulfill the GenEd requirement (taught in English):

- Aesthetic and Interpretive Understanding 59: Nazi Cinema - The Art of Illusion (Prof. Eric Rentschler): Fall 2016

**Sample Advanced Courses**



- SCAND 160A: Old Norse Language, Literature, and Culture - The Viking Legacy
- GERMAN 61: Advanced Grammar and Reading
- GERMAN 64: Environment Matters
- GERMAN 69: Crossing Borders
- GERMAN 115: Deutsche Komödie
- GERMAN 134/ MUSIC 192r/ HIST 13k: Understanding Beethoven
- GERMAN 140/ HISTORY 1323: German Social Thought from Nietzsche to Habermas
- Germanic Studies 1xx: The Heroic Epic in Northern Europe



**Continued...**



- COMPARATIVE LITERATURE 157: Comparative Modernisms



**Sample Thesis Titles**



- Toxi Grows Up: A Changing Appraisal of the Afro-German Cinematic Image in Post-Reunification German through Branwen Okpako's Dreckfresser
- "Holding the Hohlspiegel up to nature: Crises of Reading, Reflections, and Inheritance in Shakespeare and Kleist"
- Germany's Achtundsechziger Generation and the Rise of the Rote Armee Fraktion: Burned Children Returning to the Fire as Seen Through Die Bleierne Zeit
- The Literary and Cinematic Anticipation of the Führer Figure
- Development of the Female Protagonist in the Work of Victoria Benedictsson
- Bridging the Unbridgeable Gap: Memory and Self in Christa Wolf
- Nänie: Schiller, Goetz, Brahms



**Sample Department Research Opportunities**



The Minda de Gunzburg Center for European Studies (CES)



**Sample Faculty Research and/or Publications**



John Hamilton:

- Research: Teaching and Research topics include 18th- and 19th-century Literature, Classical Philology and Reception History, Music and Literature, Literary Theory and Political Metaphorology.
- Publication: *Security: Politics, Humanity, and the Philology of Care* (Princeton UP, 2013)

Stephen Mitchell:

- 2013. "Memory, Mediality, and the 'Performative Turn': Recontextualizing Remembering in Medieval Scandinavia." *Scandinavian Studies* 85 (3): 282-305. 2014. "Leechbooks, Manuals, and Grimoires. On the early History of Magical Texts in Scandinavia." *Arv. Nordic Yearbook of Folklore* 70: 57-74.

Lisa Parkes:

- *Issues in Language Program Direction: Integrating the Arts: Creative Thinking about FL Curricula and Language Program Direction* (co-edited with C. Ryan and S. Katz Bourms, 2015)

Eric Rentschler:

- *The Use and Abuse of Cinema: German Legacies from the Weimar Era to the Present* (Columbia UP, 2015)

# GOVERNMENT

## WHO WE ARE

Of all the social sciences, political science has perhaps the least definite boundaries and the most adventurous border crossers. Because it concerns itself with power in all of its many forms and consequences, political science covers many different subjects. These include the philosophy and ethics of exercising power and the history of political ideas (political theory); the operation and distinctiveness of politics in the United States (American politics); the diversity of political regimes, institutions, and behaviors in the contemporary world and the significance of these divergences (comparative politics); the interaction among international actors, the causes of war and peace, and the roots of global poverty and prosperity (international relations). Political scientists work in and across these disciplinary subfields using a large and varied tool kit: qualitative methods such as historical and archival research, fieldwork, interviews, and textual analysis; and various quantitative methods such as statistical analysis, formal modeling, and experiments. Some departments of political science specialize in a particular subfield or methodology. The Harvard Government Department, however, prides itself on its comprehensiveness, diversity, and vibrant pluralism and has strength in all areas of the discipline.

The department understands that undergraduates concentrate in Government for many reasons: some with scholarly intent, some with a passion for policy, some with an eye to a political career, and many just wishing to know more about this inescapable human concern. Nevertheless, we have common goals for all concentrators. First, we aim to make all students aware and critical of their first opinions (since human beings are at their most opinionated in politics). Government students learn to analyze, argue, and persuade: out loud and on paper. This begins in sophomore tutorial, which is focused on debates over democracy. Second, we try to assure that concentrators grasp the main approaches and topics in the discipline of political science by requiring a “literacy” course in political science methods and at least one course in every subfield. Finally, we offer each student the possibility of satisfying his or her particular intellectual bent and curiosity through a cluster of electives and a required seminar. You have the freedom to choose your

particular path through the Government curriculum, but we work closely with you to assure your choices are thoughtful and informed.

## ADVISING



When students declare as sophomores, the Teaching Fellow for their sophomore tutorial (Gov 97) serves as their advisor. In their junior and senior years, students work with the designated Government residential tutor in their House. (In a few Houses, this person is a non-resident affiliate.) Students are also always welcome to meet with staff in the Government office.

## ALUMNI



Common paths for Government concentrators are into the fields of law, government, business, education, media, medicine (including public health and health policy), academia, and non-profits/NGOs.

To read some profiles of our alumni, go to: <http://gov.harvard.edu/help-im-about-graduate>

**Gateway Courses**  
Suggested and/or  
**Required Courses**

- **GOV 10:** Foundations of Political Theory (spring)
- **GOV 20:** Foundations of Comparative Politics (fall)
- **GOV 30:** American Government: A New Perspective (fall)
- **GOV 40:** International Conflict and Cooperation (fall)
- **GOV 50:** Introduction to Political Science Research Methods (spring)

**Sample Advanced Courses**

- GOV 1796: Central Challenges of American National Security, Strategy, and the Press
- Gov 1730: War and Politics
- Gov 1295: Comparative Politics of Latin America
- Gov 1430: The Politics of Personal Data
- Gov 94QA: Community in America
- Gov 94YM: The Politics and Ethics of Climate Change

**Sample Thesis Titles**

- What's Race Got to Do With It: Texas' Voter ID Law and Access to the Ballot
- From "Every Tub on Its Own Bottom" to "One Harvard": Centralization and Executive Leadership at Harvard University, 1972-2016
- American Secrecy: Re-Examining the Causes of Classification for National Security
- Contending for Champions: Athletic Immigration Policies in a Competitive Global Market
- Following the Yellow Brick Road: The Role of Interconnectivity in the Criminalization of Human Trafficking

**Sample Department Research Opportunities**

- Institute of Politics (IOP): The IOP also offers wide-ranging opportunities for students to practice, get inspired, and gain the skills for a future in public service. Fourteen programs available to students including the Harvard Public Opinion Project, a nationwide survey project of young adults' political views; and the Women's Initiative in Leadership, created to address the interest and importance of female students at Harvard in developing leadership skills.
- Harvard Political Review (HPR): premi-

**Continued...**

nent student journal of politics, policy, and culture. The HPR is written and published entirely by Harvard undergraduates and is housed at the Institute of Politics.

- Gov 92r (Research Assistantships for Credit) offered each semester.

**Sample Faculty Research and/or Publications**

**Professor Danielle Allen:**

- A political theorist who has published broadly in both democratic theory and the history of political thought, is working on a study of citizenship in the digital age. Her publications include *The World of Prometheus: The Politics of Punishing in Democratic Athens* (2000) and *Talking to Strangers: Anxieties of Citizenship since Brown v. Board of Education* (2004).

**Professor Melani Cammett:**

- Studies the political economy of development in the Middle East and issues of identity politics in the region. She is currently beginning a project on the long-term historical roots of distinct development trajectories in the Middle East. Her books include *Globalization and Business Politics in North Africa: A Comparative Perspective* (2007, 2010) and *Compassionate Communalism: Welfare and Sectarianism in Lebanon* (2014).

**Professor Ryan Enos:**

- Studies political psychology, race and ethnic politics, and political behavior in the U.S. and other countries. He is at work on a book entitled *The Space Between Us: Social Geography and Politics*; among his other recent publications are: *"The Causal Effect of Intergroup Contact on Exclusionary Attitudes"* (2014), *"Aggregate Effects of Large-Scale Campaigns on Voter Turnout"* (2016) and *"Intergroup Behavioral Strategies as Contextually Determined: Experimental Evidence from Israel"* (2016).

**Professor Joshua Kertzer:**

- Specializes in the intersection of international security, foreign policy, political psychology, and quantitative and experimental methods. His award-winning book, *Resolve in International Politics*, is forthcoming at Princeton University Press. His work has been featured on The Colbert Report, Chelsea Lately, and Real Time with Bill Maher.

**Professor Gwyneth McGlendon:**

- Studies comparative political behavior, religious and ethnic politics, and political participation, with regional foci in Sub-Saharan Africa and the United States. She is at work on a new book about envy in politics; among her other publications are *"Race and Responsiveness: A Field Experiment with South African Politicians"* (2016), *"Individualism and Empowerment in Pentecostal Sermons: New Evidence from Nairobi, Kenya"* (with Rachel Riedl, 2016), and *"Social Esteem and Participation in Contentious Politics: A Field Experiment at an LGBT Pride Rally"* (2014).

# HISTORY

Tracks: History

## WHO WE ARE

History is more than just the study of the past; it examines how societies, people, and nature actually functioned in the past and in turn, how that context affects the present. Our faculty's courses enable students to encounter the unfamiliar and to approach it with empathy and analytical understanding.

We teach our concentrators to appreciate change over time, contingency, complexity, and diversity of perspectives; to analyze sources closely, to research deeply, to write clearly, and to speak with confidence. Our Department teaches tomorrow's leaders why yesterday matters. Historians study politics and government; diplomacy and international relations; science and technology; finance and economics; religion and philosophy; literature and arts; cultural and social changes and exchanges; archaeology, anthropology, evolutionary psychology, and genetics. Interdisciplinarity is native to historical practice. Our students familiarize themselves with the methods and theoretical assumptions of other disciplines, even while learning how these methods and theories are just as much products of history as the questions they were developed to address. The in-depth study of history – with its emphasis on rigorous analysis, research, and writing – prepares students exceptionally well for navigating the data-rich, networked, globalized world in which they live. History makes all your interests more interesting. And, to be honest, who wouldn't relish the chance to spend their college years reading really great books and thinking about the issues that intrigue them most?

## ADVISING



The History department offers extensive advising support to students. For an overview of faculty, staff, and peer advising roles in the department, and of the many advising resources that are available to you, go to: [history.fas.harvard.edu](https://history.fas.harvard.edu)

## ALUMNI



Just as history is everything, so too you can do anything with history. Our alumni have gone on to a wide range of careers from magic to medicine, from brewing beer to business, from the military to the media. History teaches you to examine issues critically and creatively, grasp details while seeing the big picture, and think boldly but flexibly enough to change your opinions when change is warranted. These skills are valued and actively sought after in countless fields. In a typical year, about 25% of our graduating concentrators move on to law school, around 25% enroll in business school, and approximately 10% move on to academic careers. The remaining 40% are spread across the public and private sectors and across the globe, with teaching, consulting, journalism, and careers in government and the non-profit sector well represented. Thanks to close interactions with faculty who can recommend them with firsthand experience, our concentrators typically do very well in securing offers of jobs and further education.



## Gateway Courses Suggested and/or Required Courses



General Education Courses Fall 2016 (All Counting for history concentration requirements)

- **CB 20:** Reason and Faith in the West
- **SW 12:** China - Past, Present, Future
- **SW 18:** Europe on Trial: Retribution, Renewal and Reconciliation Since 1945
- **SW 36:** Modern India and South Asia
- **SW 43:** Japan's Samurai Revolution
- **SW 53:** The Fall of the Roman Empire
- **History 1011:** The World of the Roman Empire (fulfills Societies of the World)
- **History 1144:** The Renaissance in Florence (fulfills Culture and Belief)
- **History 1457:** History of American Capitalism (fulfills United States in the World)
- **History 1265:** German Empires, 1848-1948 (fulfills Societies of the World)
- **History 1462:** History of Sexuality in the Modern West (fulfills Culture and Belief)
- **History 1465:** The United States in the World, since 1900 (fulfills United States in the World)
- **History 1511:** Latin America and the United States (fulfills United States in the World)

The History concentration is very flexible and has only one required course: **History 97** (sophomore tutorial)



## Sample Advanced Courses



- History 83A (Undergraduate Seminar): Markets and States - The History of Economic Thought Since 1750
- History 1433 (Lecture Course): American Populisms - Thomas Jefferson to the Tea Party
- History 1013 (Lecture Course): Pacific Crossings - Introduction to Asian American History
- History 1937 (Conference Course): Social Revolutions in Latin America
- History 2060 (Graduate Seminar): Topics in High and Late Medieval History



## Sample Thesis Titles



- No Fortunate Sons: Vietnam Veterans Against the War and the Transformation of American Civic Culture, 1967-Present
- Letters Of A Woman Homesteader: Representation, Reality, and the Myth of the American West
- From Infamis To Imperator: The Changing Role of the Actor in Late Republican and Early Imperial Rome
- Contagion and Response: African and Co-



## Continued...



lonial Authority During the 1908 Outbreak of Plague in the Gold Coast Colony



## Sample Department Research Opportunities



4 kinds of independent research opportunities:

- Term-time independent study for juniors and seniors (History 91R)
- Term-time work with faculty on research projects, "History Lab" (History 92R): offers History concentrators and other students a chance to spend a semester working with History faculty on faculty research projects. Outcomes will include familiarity with a range of digital tools for research and data visualization and insights on how to design and execute a major research project.
- Summer Research Grants (for students planning to write a thesis). Please visit the Undergraduate Program website for more information on summer thesis grants.
- Research Assistantships with faculty members: History faculty members often look for eager and qualified individuals to help them conduct research and prepare for their courses, and in many cases they find good matches among the student body. For students, the chance to be a Research Assistant is one of the best ways to sit at the elbow of a practicing historian and learn the disciplinary techniques and standards that make one's classroom experience come alive, and which can contribute to writing a stellar senior thesis.



## Sample Faculty Research and/or Publications



Lisa McGirr:

- Research: History of the 20th century United States, with particular focus on social and political history, collective action, state building, reform movements, and politics.
- Publication: *The War on Alcohol: Prohibition and the Rise of the American State* (2016)

Elizabeth Hinton

- Research: Poverty and racial inequality in the 20th century United States, the transformation of domestic social programs and urban policing after the Civil Rights Movement.
- Publication: *From the War on Poverty to the War on Crime: The Making of Mass Incarceration in America* (2016)

Serhii Plokhii

- Research: The intellectual, cultural, and international history of Eastern Europe, with an emphasis on Ukraine.
- Publication: *The Gates of Europe: A History of Ukraine* (2015)

# HISTORY & LITERATURE

*Fields of Study:* American Studies  
Latin American Studies  
European Studies  
Modern World  
Early Modern World  
Medieval World



## WHO WE ARE

**H**istory & Literature is the study of ideas in context. A rigorous honors concentration built on student-centered tutorials and individualized advising. History and Literature balances structure and flexibility. Designed for students who want to take charge of their education, History & Literature trains students in the study of more than one discipline, more than one language, more than one nation, more than one culture, and more than one century. Join our close-knit community of students, scholars, artists, and critics who want to do more with the humanities. Harvard's oldest concentration, History & Literature was introduced to offer students a focused, interdisciplinary program of study. History & Literature concentrators take courses across the college in their areas of interest. The possibilities are endless, which is why we offer a robust system of academic advising to help you identify your priorities and ensure that your plan of study is rigorous, combining coursework in various disciplines. By the senior year, History & Literature concentrators are prepared to write prize-winning senior theses based on original research.

## ADVISING



We in History & Literature take great pride in our dedication to teaching and advising. Each year, we match you with an advisor who works with you to shape your individualized plan of study.

## ALUMNI



Our alumni, who have gone on to work in fields such as politics, journalism, medicine, the arts, public policy, finance, law, media, business and academia, proudly participate in this legacy by demonstrating through their success what History & Literature can do for you. Visit [histlit.fas.harvard.edu](http://histlit.fas.harvard.edu) to browse through profiles of History and Literature alumni that include the courses that fulfilled their concentration requirements as well as information about their amazing accomplishments since graduation!

## QUESTIONS?

Lauren Kaminsky, Director of Undergraduate Studies: [kaminsky@fas.harvard.edu](mailto:kaminsky@fas.harvard.edu), 617-495-1901 |  
Jennifer Brady\*, Associate Director of Undergraduate Studies: [jenniferbrady@fas.harvard.edu](mailto:jenniferbrady@fas.harvard.edu), 617-495-3448 |

\* Study abroad contact

## Fields of Study

- American Studies
- Latin American Studies
- European Studies
- Modern World
- Early Modern World
- Medieval World

## Gateway Courses

Suggested and/or  
Required Courses

Try one of the HL90s! These small seminars count for concentration credit regardless of field and have space reserved for first-year and sophomore students considering Hist & Lit. The 2016-2017 HL90s include:

- HL90ba: England After Empire
- HL90cg: Remembering the American Revolution
- HL90cm: Asian American Cultural Studies
- HL90cf: The American Prison & The Literature of Punishment
- HL90cn: Poverty, Wealth, and Religion in the Middle Ages
- HL90bo: Sports and Empire
- HL90ci: Immigrant America on Page and Stage
- HL90ch: Computers and American Culture
- HL90cl: Breaking the Law: American Crime Stories
- HL90ce: The Civil War in the American Imagination
- HL90bc: We the Readers: Reading Communities in Early America
- HL90bk: American Economic Fictions
- HL90bx: World War I in Fiction, Film, Poetry, and Memoir
- HL90by: Cold War Cinema
- HL90bz: Harvard, Meritocracy, and the Making of Elites
- HL90l: Stories of Slavery and Freedom

The only required courses in Hist & Lit are *tutorials*, which gives students the flexibility to select courses from across the college to count for concentration credit and satisfy their individual interests and goals.

## Sample Thesis Titles

- Contemporary Black Female Artists Confront the Post-Racial Fantasy
- The Baker Street Irregulars and Sherlock Holmes Fandom in America
- ‘Mr. Congressman, Why Can’t You Understand?’: Johnny Cash and the Politics of Criminality

## Continued...

- French Colonial Medicine and the Transformative Role of Midwives
- The Video Game as Historical, Ideological, and Societal Entity in the Bioshock Series
- Discourses of Pollution Along the Korle Lagoon in Accra, Ghana
- Representations of Interracial Collaboration during Golden Age Piracy
- Free People of Color and the Struggle to Survive in Antebellum Louisiana and Mississippi
- British Nurses and Wartime Trauma on the Front Lines of World War I
- Spectacle and Propaganda in Peru’s MRTA
- Black Women Playwrights and the Fight Against Lynching, 1916-1940
- Orienting Virginia Woolf: Japonisme in *To the Lighthouse*, *Orlando*, and *The Waves*
- Joyce Chen’s Chinese Cuisine in Cambridge, Massachusetts, 1949-1982

## Sample Faculty Research Interests

- David Alworth:
- American literature and culture, modernism, visual art, social theory
- Genevieve Clutario:
- Asian/American histories, gender, colonialism, and the politics of fashion and beauty
- Lorgia García Peña:
- U.S. Latino/a and Caribbean literatures, race, ethnicity, migration and human rights

## Next Steps

Visit us in Barker 122 to speak with a faculty advisor during open office hours every Mon-Thurs 10am-12pm and 2-4pm.

Speak with a current concentrator to learn about Hist & Lit from a student’s perspective. You can find peer advisors’ contact information on our website at [histlit.fas.harvard.edu](http://histlit.fas.harvard.edu).

## WHO WE ARE

**H**istory & Science is an interdisciplinary field of study. The program offers students a variety of opportunities to expand their understanding of the scientific enterprise and to explore in detail how science has developed in history and how science has shaped other human activities. Students are challenged to ask big questions about science, medicine, and technology, and their place in human societies across time. How do scientists come to know things about the natural world? Why should we believe what they tell us? What are some social, ethical, political and religious implications of science? How do they affect the way people in different times and places live their lives? Students focus on many topics and time periods, from Darwinism to modern biotechnology, medieval understandings of women's bodies to modern computing. At the same time, through the tutorial program, all students are taught skills of advanced source analysis, independent research, and academic writing which both prepares them to write a senior thesis, if they wish, and sets them up to succeed in a wide range of graduate programs and careers after college, from consulting to law school to medical school. By taking a combination of courses from our department and also outside of it, students can learn how sciences as diverse as theoretical physics and economics interact with other areas of culture such as literature, film, art, or government.

## ADVISING



The Director of Undergraduate Studies (DUS), Anne Harrington, has overall responsibility for academic advising in the concentration. The Manager of Student Programs, Allie Belser, is the primary concentration advisor for all concentrators. They both approve study cards. Additional advising is provided by the faculty who lead History and Science sophomore, junior, and senior tutorials. Freshmen considering History & Science should contact the Manager of Student Programs or the DUS.

## ALUMNI



Many of our alumni have used their time in our concentration as a launching pad for further professional study, especially law and medical school. In fact, our Medicine and Society focus is an honors-eligible option designed especially for premedical students. Because we teach advanced research skills, our graduates have also been attractive candidates for positions in business consulting, government, and health or science policy. Some have also gone on to teach in programs like Teach for America, where their broad training in both science and history have made them highly competitive. Finally, some of our alumni have so enjoyed their time in our concentration that they have decided to seek a Ph.D. in the field. A 2013 survey of our alumni asked about their career paths since graduating, and how useful History & Science had been in their professional lives since college. The survey attracted over 500 enthusiastic responses; the highlights can be found on the History of Science department website: <http://histsci.fas.harvard.edu/>.

## QUESTIONS?

Anne Harrington, Director of Undergraduate Studies: [aharring@fas.harvard.edu](mailto:aharring@fas.harvard.edu), 617-496-5234 |

Alice Belser\*, Manager of Student Programs, Concentration Advisor, Secondary Fields Contact: [abelser@fas.harvard.edu](mailto:abelser@fas.harvard.edu), 617-495-3742 |

\* Study abroad contact

## Gateway Courses Suggested and/or Required Courses

- **HISTSCI 100:** Knowing the World - Introduction to the History of Science (not offered 2016-2017)
- **HISTSCI 102v:** Knowing the World - Globalizing the History of Science (substitution for HISTSCI 100)
- **Culture and Belief 34:** Madness and Medicine - Themes in the History of Psychology
- **Ethical Reasoning 33:** Medical Ethics and History
- **Science of the Physical Universe 17:** The Einstein Revolution
- **FRSEMR 41D:** Sick and Tired of Being Sick and Tired - Health Disparities and African Americans
- **FRSEMR 70I:** Contagion - Epidemics and Endemics from Black Death to Ebola

## Sample Departmental Courses

- HISTSCI 108: Bodies, Sexualities, and Medicine in the Medieval Middle East
- HISTSCI 118: Instruments and the Material Culture of Science in Early Modern Europe
- HISTSCI 136: History of Biotechnology
- HISTSCI 137: Animals in History
- HISTSCI 142v: Masculinities and Health - History and Politics of Men's Health and Illness
- HISTSCI 143: Confined - Hospitals in the History of Medicine and Religion
- HISTSCI 147: The Changing Concept of Race in America - From Jefferson to Genomics
- HISTSCI 149: The History and Culture of Stigma
- HISTSCI 163v: Science, Empire, and Pacific Exploration in the Age of the Enlightenment
- HISTSCI 182: An American Way of War - Technology and Warfare
- HISTSCI 189: The World We Made - Technology and Society
- HISTSCI 199: Science and Religion in America

## Sample Thesis Titles

- Carceral Continuities: Tracing Black Bodies from the Asylum to the Penal State
- The Gatekeepers of Extraordinary Phenomena: Telepathy and the Society for Psychological Research
- A Subtle Yet Calculated Approach: The London School of Medicine for Women and Its Cultivation of the Lady Doctor, 1869-1914

## Continued...

- Ethiopian Jews, Migration Narratives and Contested Identities in Israeli Diagnoses of Psychotrauma, 1977 to the Present
- (Trans)valuation: The Cultural and Clinical Reassignment of Sex Reassignment Surgery, 1952-1979

## Sample Department Research Opportunities

- Synthesis: a journal launched by the concentration that publishes undergraduate scholarship at Harvard and beyond
- Rosenkrantz Discovery Grants, for rising juniors to travel to and explore sites and resources worldwide related to the history of science, medicine, and technology
- Alumni Network of graduates from the program offering career advice and contacts
- Internships in Museum Studies: offers motivated concentrators the opportunity to work with scholars, curators and designers on new exhibitions (often undertaken in association with other museums at Harvard and beyond) that are regularly developed and displayed for the public in our temporary exhibition space for the Collection of Historical Scientific Instruments.

## Sample Faculty Research and/or Publications

- Alex Csiszar: material culture, media studies, philosophy of science, science & technology studies
- Anne Harrington: history of psychiatry, brain science, psychology, mind-body medicine, medicine and religion (also **Director of Undergraduate Studies**)
- Matthew Hersch: history of technology, aerospace and space travel, war and technology
- Rebecca Lemov: history of the social sciences, history of anthropology, Cold War science, brainwashing
- Elizabeth Lunbeck: human sciences, medical humanities, psychology and theories of mind, women and gender studies
- Sophia Roosth: history and anthropology of molecular biology, synthetic biology, questions about the boundary between life and non-life
- Gabriela Soto-Laveaga: global history of medicine, Latin American history, Mexican history and history of science, history of science and politics

# HISTORY OF ART & ARCHITECTURE

Tracks:

*History of Art & Architecture  
Architecture Studies (jointly  
administered by the Graduate  
School of Design)*



## WHO WE ARE

The History of Art & Architecture concentration offers training in the historical interpretation and critical analysis of the visual arts and architecture. It develops the skills of visual discrimination and verbal expression fundamental to art historical analysis. Art history is a multifaceted discipline embracing many different methods, perspectives and interests. Training in the critical analysis of art seeks to clarify the perception – and understanding – of how artworks relate to the techniques and materials used in their making, and to the environment in which they are seen. It also fosters the ability to make and explain judgments of quality and value.

Instruction in critical analysis is aided by the department's partnership with one of the world's greatest teaching museums, comprising the Fogg, Busch-Reisinger, and Sackler Museums. This offers students a unique opportunity of firsthand study of original works of art in many media. Generally, course work offers coverage of the history of art, while a sequence of small-group tutorials develop critical skills. For students with a special interest in architecture, the concentration offers courses on architectural history and urban planning. Requirements for all concentrators provide exposure to a variety of areas within art history, as well as allow for the selection of a major field focus from among the following: African, Ancient (Egypt, Ancient Near East, Greece, Rome), Architecture, Baroque and Rococo, Byzantine, Chinese, Japanese, South Asian, Islamic, Latin American/Pre-Columbian, Medieval, Modern and Contemporary, and Renaissance.

## ADVISING



The advantageous student/faculty ratio in HAA allows for enhanced engagement of students with faculty both inside and outside the classroom, a frequent means of informal advising. Additional advising in the concentration is provided by the Director of Undergraduate Studies (DUS) and the Undergraduate Coordinator, who also sign study cards.

## ALUMNI



What does one do after undergraduate study in History of Art & Architecture? Well, most anything, really: many of our students go on to graduate study in History of Art & Architecture and careers in academia or in museums – we have many alumni on faculty at universities across the country, and curators and conservators at museums around the world; many others go on to graduate study in the practice of architecture, becoming architects, landscape architects, or urban planners. Many have gone into a wide variety of career directions – equipped with skills in visual, textual, and historical analysis which are particularly applicable to career pursuits in a modern world which is a far more visually-oriented society than the text-based society of the twentieth century.

Alumni of History of Art & Architecture hold positions in advertising, media, design, the arts (filmmaking, music production, drama, dance), and the fashion industry. Many go into finance – we have many bankers and consultants in our alumni ranks, along with professionals in marketing, merchandising, and brand development. Several have pursued medicine and completed the pre-med track alongside their concentration in History of Art & Architecture. They made particularly striking candidates to medical schools' admissions boards. Many have gone on to law school and are practicing attorneys. Others hold positions in government, from the State Department and Department of Transportation to the Israeli Knesset. We also have creative and striking individualists: journalists, caterers, actresses, yoga instructors, children's book writers, cookbook writers, bloggers, professional athletes, hoteliers, and a ship-broker – we are in touch with many of these former students, and may perhaps be able to offer a bridge of communication to those students wishing to talk with “someone in the field.”

In short, like many other concentrations in the Humanities and Social Sciences at Harvard and elsewhere, study of History of Art & Architecture need not necessarily be directed toward a specific vocational or professional end. History of Art & Architecture offers concentrators the opportunity to pursue the study of things and questions about which they are excited and to develop skills useful in many walks of life and careers.

## QUESTIONS?

Yukio Lippit\*, Director of Undergraduate Studies: [lippit@fas.harvard.edu](mailto:lippit@fas.harvard.edu), 617-495-3950 |

Thomas Batchelder\*, Undergraduate Coordinator, Secondary Fields Contact: [tbatchel@fas.harvard.edu](mailto:tbatchel@fas.harvard.edu), 617-265-2310 |

\* Study abroad contact

**Gateway Courses**  
Suggested and/or  
Required Courses



- HUM 11a: The Art of Looking
- HAA 11: Landmarks of World Architecture

**Sample Advanced Courses**



- HAA 161g: Francisco de Goya
- HAA 176e: Vision and Justice - Art & Citizenship
- HAA 170m: Manet to Man Ray
- HAA 195e: Africa and Europe - Histories of Exchange
- HAA 171V: Contemporary Architecture and Critical Debates
- HAA 174S: Body Image in French Visual Culture - 18th and 19th Century

**Sample Thesis Titles**



- Constructed Portraits: Richard Hamilton's Fashion-Plates
- Reflections of Femininity in 19th c. French Portraiture
- The Languages of Boston City Hall
- 3D Printed Architecture: A Paradigm Shift toward a New Typology
- Translating the Language of the Stones: Commodity Fetishism (Sister Carrie and trompe l'oeil painting)
- From Curios to Collectibles: Yamanaka Sadajiro and the Politics of the Changing Asian Art Canon



**Sample Department Research Opportunities**



Vienna Project: a scholarly and artistic collaboration that explores Vienna at the turn of the last century through the lens of home and homemaking.



**Sample Faculty Research and/or Publications**



- Joseph Connors:
- *"Piranesi and the Campus Martius: The Missing Corso: Topography and Archaeology in Eighteenth-Century Rome"*
- Thomas Cummins:
- Research: Pre-Columbian and Latin American Colonial Art, the analysis of early Ecuadorian ceramic figurines and the study of late Pre-Columbian systems of knowledge and representation and their impact on the formation of 16th and 17th century colonial artistic and social forms.
  - Publication: *The Inka Empire Revealed: Century After the Machu Picchu "Discovery"*. Ed. Thomas Cummins, et al. Tokyo: Tokyo's National Museum of Science and Nature & Tokyo Broadcasting System Television, Inc, 2012. Print.
- Ioli Kalavrezou:
- Research topics in political and ideological history, the relationship of Church and State, the role of King David in manuscript illumination, the cult of the Virgin Mary, the sun imagery in the person of the emperor and private devotion as for example in her book on Byzantine Steatite Icons. The role and place of women in Byzantine society has been another ongoing field of research, which produced a large exhibition entitled: *Byzantine Women and their World* and its catalogue.

## WHO WE ARE

**H**uman Developmental & Regenerative Biology (HDRB) is a life science concentration that educates students on how human beings develop from a fertilized egg, are maintained and repaired throughout adulthood, and age till life's end. Students will be given a broad education in modern life sciences by studying important biological principles within the specific rubric of the developing and regenerating body. By adding an explicit and heavy emphasis on hands-on research opportunities in all four undergraduate years, HDRB will engage students with an interest in research and take advantage of Harvard's special strengths as a teaching college and research university. To the extent that "translational" or "applied" research focuses on the application of discoveries made in model systems to humans, the HDRB concentration will embrace the opposite approach. Its emphasis will be on rigorous basic science with a focus on what the study of humans reveals about fundamental biology and, reciprocally, what a greater understanding of biology teaches us about ourselves. We believe that a fundamental understanding of how the human organism develops and maintains itself requires foundational knowledge in life sciences, chemistry, and physical sciences, which are in turn dependent on a fundamental knowledge of mathematics. The requirements for the concentration reflect this view. HDRB is governed by the Department of Stem Cell and Regenerative Biology. The framework of the concentration takes advantage of faculty strength in both the Faculty of Arts and Sciences, and Harvard Medical School. HDRB concentrators will focus on human biology with significant emphasis on hands-on research. The curriculum provides a range of courses that will benefit students interested in medicine and biomedical research, as well as other fields in which a comprehensive understanding of human biology is needed.

## ADVISING



Primary advising in the concentration is provided by the Associate Director of Education (Bill Anderson), who also signs study cards.

## ALUMNI



The Human Developmental & Regenerative Biology concentration graduated its first class in 2012. Most alumni pursue graduate studies in medicine or the biological sciences. Some have also entered private industry to work in biotech. However, the critical thinking and analytical skills stressed and honed by the HDRB curriculum can be translated to a variety of careers, such as business/consulting, public health/policy, education, and intellectual property law.



## Gateway Courses

Suggested and/or Required Courses



- **LS 1A:** An Integrated Introduction to the Life Sciences - Chemistry, Molecular Biology, and Cell Biology OR **LPS A:** Foundational Chemistry and Biology
- **LS 1B:** An Integrated Introduction to the Life Sciences - Genetics, Genomics, and Evolution
- **PHYSCI 1:** An Introduction to the Physical Sciences
- **STAT 102:** Introduction to Statistics for Life Sciences
- **SCRB 10:** Human Developmental and Regenerative Biology
- **SCRB 20:** Molecular Genetics and Genomics in Development and Disease



## Sample Advanced Courses



- SCRB 110: Classic Experiments in Developmental Biology
- SCRB 130: Biomedical Entrepreneurship - Turning Ideas into Medicine
- SCRB 140: Developmental and Molecular Basis of Growth and Regeneration
- SCRB 167: Stem Cells and Regeneration in the Pathobiology and Treatment of Human Disease
- SCRB 178: Immunology - New Tracks and Greatest Hits
- SCRB 180: Development, Plasticity, and Regeneration in the Mammalian Brain
- SCRB 187: Brains, Identity, and Moral Agency
- SCRB 190: Understanding Aging - Degeneration, Regeneration, and the Scientific Search for the Fountain of Youth



## Sample Thesis Titles



- Transcriptional Characterization of Mouse Hypothalamic Neurons
- Lineage-Specifying Transcription Factors Dictate Squamous Transformation of the Lung
- Oncostatin M Enhances Hematopoietic Homing and Engraftment Post-Transplant
- The Regulation of Growth Differentiation Factor 11 During Aging
- The Role of Klf9 in the Regulation of Activation and Quiescence of Neural Stem Cells in the Adult Hippocampus



## Sample Department Research Opportunities



The Department of Stem Cell and Regenerative Biology welcomes undergraduates to join its labs to pursue independent research projects. Some of the many areas of research available to undergraduates include: Aging and Stem Cells, Cancer, Cardiovascular Development and Metabolic Disease, Directed Differentiation, Epigenetics, Epithelial Development and Disease, Immune Tolerance, Kidney Development and Repair, Nervous System Development and Disease, Nuclear Reprogramming, Pancreas Development and Diabetes.



## Sample Faculty Research and/or Publications



- Three independent research teams, one of which was lead by HSCR B's Amy Wagers, used gene-editing technologies to repair dystrophin genes involved in Duchenne muscular dystrophy.
- Konrad Hochedlinger has identified genes that when suppressed effectively erase a cell's memory, making the cell more susceptible to reprogramming and, consequently, making the process of reprogramming quicker and more efficient.
- HSCR B professor Paola Arlotta showed neurons can be "rewired," along with their networks of communication. Neighboring neurons recognize the rewired neurons as new and change how they communicate.
- Harvard scientists, led by Leonard Zon, found a group of compounds that could make human bone marrow transplants more effective.
- HSCR B scientists, led by Co-Head Tutor Doug Melton, are for the first time able to produce, in the kind of massive quantities needed for cell transplantation and pharmaceutical purposes to treat Diabetes, human insulin-producing beta cells equivalent in most every way to normally functioning beta cells.

# HUMAN EVOLUTIONARY BIOLOGY

Tracks:

Human Evolutionary Biology  
Mind, Brain, Behavior



## WHO WE ARE

Evolutionary theory provides a powerful framework for investigating questions about why humans are the way they are. Human evolutionary biologists seek to understand how evolutionary forces have shaped our anatomy, our biology, and our patterns of behavior. Examples of questions in which we are interested include:

- Are humans adapted to eating cooked food?
- Why do humans walk upright?
- What is the role of gut micro biota in energy metabolism?
- What are the genetic bases for uniquely human traits?
- When, where, how and why did *Homo sapiens* evolve?
- What has been the impact of environmental change on our human ancestors?

Human Evolutionary Biology (HEB) provides a general foundation in human and organismic biology as part of the life sciences cluster of concentrations. Students interested in addressing questions about human and non-human primate cognition from the perspective of human evolutionary biology may pursue a Mind/Brain/Behavior track.

We encourage our students to get involved in research in HEB, and we offer many small, advanced courses for students to work intensively with members of the faculty. Opportunities vary from primarily lab-based research – such as in behavioral endocrinology, evolutionary genetics, phylogenetics, anatomy, or primate and human nutrition – to field-based work – such as studying indigenous peoples in South America or primates in East Africa. Our faculty work closely with undergraduates on research projects of all kinds, for senior theses, research seminars and tutorial classes.

## ADVISING



The Assistant Director of Undergraduate Studies, Carole Hooven, and the Associate Concentration Advisor, Brenda Frazier, advise students and sign study cards.

## ALUMNI



Many of our graduates have commented that one of the advantages of an undergraduate education in HEB is the diverse and powerful skill set that they developed in the concentration. The skills that HEB students learn, and that are valued and considered most useful in almost any career, include critical thinking, scientific writing and research, the ability to critically evaluate original scientific literature, and small group communication, to name a few. Students also say they greatly appreciate learning to think about the human condition from an evolutionary perspective – this gives them the tools to think more deeply about the causes of some of the problems that humans face and the kinds of solutions that might be most effective and practical given our history. In short, a degree in HEB does not prepare you for any field specifically, but rather gives you the opportunity to develop valuable “transferable” skills, on which you can build, that will allow you to succeed in almost any field. Most of our graduates go on to work in the fields of medicine or public health (many attending medical school), while a minority pursue PhD programs in graduate school in the life sciences. Others enter consulting, business, or teaching, but graduates can be found following a broad range of pursuits.

**Gateway Courses**  
Suggested and/or  
Required Courses



- [HEB 1280](#): Human Nature
- [Life Sciences 2](#): Evolutionary Human Physiology and Anatomy
- [SLS 16](#): Human Evolution and Human Health
- [HEB 1310](#): Hormones and Behavior

**Sample Advanced Courses**



- HEB 1210: Research in Comparative Biomechanics
- HEB 1300: Evolutionary Origins of the Human Mind
- HEB 1321: Food, Drink and Energy
- HEB 1418: Research Methods in Endocrinology
- HEB 1480: Human Evolution through Developmental Change

**Sample Thesis Titles**



- Cortisol and the Stress-Relieving Effects of Exercise
- Born to Run Slowly: The Influence of Exercise Intensity on Cardiovascular Disease Risk
- Your Brain on Games: Differences in Emotion Recognition after Plasticity-based Social Training
- The Development of Inequality Aversion in Ugandan Children

**Sample Department Research Opportunities**



- Resources: Labs in HEB specialize in everything from developmental genetics, to nutrition and the microbiome, to human and primate cognition, to biomechanics. Faculty also run field sites all over the world, offering opportunities to study the physiology and behavior of diverse human and non-human primate populations. World-class archaeological and zoological collections held in the Harvard museums represent unsurpassed resources for research into our human past and our place in the natural world.
- Collaborations: HEB faculty are part of the vibrant research community in the Cambridge-Boston area. In particular, students and faculty work closely with investigators at Harvard Medical School and the local hospitals, providing rich opportunities for HEB concentrators to pursue their individual interests.

**Sample Faculty Research and/or Publications**



- Daniel Lieberman:
- *The Story of the Human Body*. 2013, Pantheon Books.
- Joseph Henrich:
- *The Secret of Our Success: How Culture is Driving Human Evolution, Domesticating Our Species, and Making Us Smarter*. 2016, Princeton University Press.
- Richard Wrangham:
- *Catching Fire: How Cooking Made Us Human*. 2009, Basic Books.
- Alexandra Rosati, V. Wobber, K. Hughes, and L.R. Santos:
- "Comparative Developmental Psychology: How is Human Cognitive Development Unique?" 2014, Evolutionary Psychology.

## WHO WE ARE

“**E**volution is the strand that ties together all of biology: from the adaptive specifics of a membrane pore to grand events in the history of life, such as the Cambrian Explosion, when, 540 million years ago, life went in a single bound from simple to complex. But adaptive evolution is a response to the demands of the environment, whether this is the environment within a cell or an ecological community of interacting organisms. Integrative Biology (IB) therefore is inherently inter-disciplinary, encompassing mathematical and computational biology, functional and genetic approaches to morphology and development, as well as genetics, evolution, and ecology.

## ADVISING



Concentrators are assigned individual faculty advisors. General advising in the concentration is also provided by the Assistant Head Tutor, Andrew Berry. The IB concentration is administered by the Department of Organismic and Evolutionary Biology.

## ALUMNI



IB students are often pre-med, pre-vet or planning on going on to graduate school in some area of biology (ranging from ecology to molecular biology). Because Public Health is, to some extent, about human ecology, many IB pre-meds are particularly interested in public/global health. Many go to work in environmental organizations. Many, too, go into business, consulting, banking, or the Law.

**Gateway Courses**  
Suggested and/or  
Required Courses

- *Life Sciences 1a or Life and Physical Sciences A or Life Sciences 50a* (Fall)
- *Life Sciences 1b or Life Sciences 50b* (Spring)
- **OEB 10** (Fall, typically sophomore year)

Other ways to explore

- Come talk to us! Andrew Berry berry@oeb.harvard.edu
- Contact us if you're interested in joining IB's Undergraduate Group (OEBug), which organizes (and funds) IB-related activities. It's a great way to become a part of the IB undergraduate community
- Consider taking one of several IB-related Freshman Seminars
- Talk to us if you're interested in kicking off a research career or in taking more advanced courses as a Freshman

**Sample Advanced Courses**

- OEB 57: Animal Behavior
- OEB 101: Biology of Mammals
- OEB 107: Evolution of Plant Life in Geologic Time
- OEB 119: Deep Sea Biology
- OEB 157: Global Change Biology
- OEB 217: What Makes a Cat?

**Sample Thesis Titles**

- Sculpting the Flower: A Single Gene Duplication Underlies Complex Patterns of Functional Evolution in the Columbine Flower (*Aquilegia*)
- Insect Community Assembly of Hawaiian Lobelioideae Plants (*Campanulaceae*): A Community Phylogenetic Study
- Social Connections: Relationships between white matter integrity of the uncinatus fasciculus and social awareness and cognition in typically developing children
- Characterizing Differential Gene Expression in Probing Larvae of the Caribbean Coral Species *Porites astreoides*
- Revealing novel properties of a hybrid antibiotic and drug resistance interactions through evolution and whole-genome sequencing

**Sample Department Research Opportunities**

- Museum of Comparative Zoology: research into animal biology, using tools ranging from genomics to experimental animal behavior
- Concord Field Station: physiological and biomechanical laboratory-based research of animal performance
- Harvard Forest: field-based ecological and evolutionary studies of the New England environment
- Arnold Arboretum, Harvard Herbarium: research into plant biology, using both state of the art molecular, imaging, and ecological methods

**Sample Faculty Research and/or Publications**

- Desai Lab (Evolutionary Dynamics and Population Genetics): uses both theory and experiments to study evolution in action
- Srivastava Lab (Evolution and Development): investigates the processes underlying the capacity of simple organisms to regenerate themselves
- Ölveczky Lab (Neurobiology): studies the factors underlying neurobiological circuits developed in the acquisition of complex behaviors

Tracks: *Linguistics*  
*-Linguistic Theory*  
*-Historical Linguistics*  
*Linguistics and Mind, Brain,*  
*Behavior*  
*Linguistics with related field*

# LINGUISTICS

## WHO WE ARE

“Linguists are no different from any other people who spend more than nineteen hours a day pondering the complexities of grammar and its relationship to practically everything else in order to prove that language is so inordinately complicated that it is impossible in principle for people to talk.” (Ronald W. Langacker 1973). Linguists are engaged in the study of language structure, which is the ultimate interdisciplinary enterprise. Linguistic theory attempts to model a complex domain of human knowledge that is also central to philosophy of mind and to cognitive psychology. The linguistic models that theoretical linguists construct are formal in character and rely on computational and mathematical methodologies. As such, linguistics has a mutually beneficial relationship with computer science and the study of artificial intelligence.

An individual language is a cultural artifact, and so the reconstruction of an extinct language can shed light on the physical surroundings and the social institutions of its speakers, while the study of a living understudied language leads to the understanding of material culture, folklore, and society of a new community. That makes linguistics a topic of interest to anthropologists, sociologists, and archaeologists. Students who gravitate to linguistics are necessarily interested in language, but that means different things for different people. Linguists are not necessarily polyglots. Many are intrigued by formal systems and the prospect of modeling complex behavior; others are interested in the relationship of natural languages to other symbolic systems; still others are drawn into the formal study of language by the similarities and differences they have noticed among individual languages.

## ADVISING



Primary advising in the concentration is provided by the Head Tutor (Kathryn Davidson, [kathryndavidson@fas.harvard.edu](mailto:kathryndavidson@fas.harvard.edu)) who also signs all study cards. Students may seek out additional advising from members of the faculty who work on topics of shared interest.

## ALUMNI



Undergraduate training in linguistics at Harvard is second to none, as evidenced by the fact that each year graduating concentrators enter the most competitive graduate programs in the country. However, the majority of graduating seniors do not pursue academic careers. Instead, concentrators in linguistics become consultants, earn professional degrees in medicine and law, and pursue careers in industry. A growing trend for graduating seniors is to work in the field of automated speech technology at companies such as Google Inc.

 **Gateway Courses**   
Suggested and/or  
Required Courses

- [Linguistics 83](#): Language, Structure, and Cognition (Fall 2016)
- [Linguistics 101](#): The Science of Language: An Introduction (Spring 2017)

 **Sample Advanced Courses** 

- LING 106: Knowledge of Meaning
- LING 112: Syntactic Theory I
- LING 118: Historical and Comparative Linguistics
- LING 160: Psychology of Language
- LING 173: Linguistic Issues in Japanese
- MBB 980A: Conscious States - Waking, Sleeping, and Dreaming (*for MBB track*)

 **Sample Thesis Titles** 

- Tree adjoining grammar at the interfaces
- Heritage speakers on the edge: sentence final particle usage among heritage Cantonese speakers
- Learning to sing: evidence for non-native acquisition of musical grammar.
- The original word jumble: a case study of Latin word order in the Vindolanda tablets.

 **Sample Department Research Opportunities** 

- **Phonetics Lab**: The lab contains a PC with a Kay Computer Speech Lab (CSL) which is used both to teach and to do speech analysis in tutorials and courses. With CSL, we can make pitch tracks, spectrograms and spectra to check hypotheses and carry out experiments. Students in our phonetics courses regularly carry out projects describing the sound system of an unfamiliar language, including recent work on languages such as Arabic and Polish for honors theses.
- **Meaning and Modality lab**: Under the direction of Professor Kathryn Davidson, research in the M&M lab focuses on experimental semantics, pragmatics, bilingual cognition, and language acquisition, with special focus on sign languages as well as co-speech gesture in spoken languages. A state of the art filming room, computer lab, and video editing software support work by students on a wide range of interdisciplinary linguistic questions.

 **Sample Faculty Research and/or Publications** 

Gennaro Chierchia:

- Research Interests: semantics, the syntax/ semantics mapping, pragmatics, philosophy of language, the interface of semantics with language development, language pathology, language processing.
- Publication: *Logic in Grammar. Polarity, Free Choice, and Intervention.* 2013.

Kathryn Davidson:

- Research Interests: semantics, pragmatics, language acquisition, sign languages, bilingualism, language and cognition
- Publication: *Quotation, Demonstration, and Iconicity. Linguistics and Philosophy.* 2015.

Jeremy Rau:

- Research Interests: Greek and Latin historical linguistics; Homeric language; Indo-European languages and linguistics; Indo-Iranian linguistics
- Publication: *The Origin of the Short-Vowel Inflection of the EU-Stems in Homer.* Glotta. Forthcoming.

Kevin Ryan:

- Research Interests: phonology: prosody, weight, variable sandhi, gradience, corpus/computational methods; morphology: morphotactics, learnability, evolution; poetics: probabilistic-generative metrics, rhyme, alliteration; South(east) Asian languages: Sanskrit, Tamil, Thai, Senaya fieldwork
- Publication: *Gradient syllable weight and weight universals in quantitative metrics.* Phonology. 2011.

Isabelle Charvanel:

- Research Interests: syntax/semantics interface, syntactic theory, French linguistics, psycholinguistics
- Publication: *Anaphor Binding – What French Inanimate Anaphors Show* (with Dominique Sportiche). Linguistic Inquiry 2016.

# MATHEMATICS

Tracks: *Mathematics  
Math & Teaching (for students in  
UTEP)*

## WHO WE ARE

**M**athematics is the science of order, and mathematicians seek to identify instances of order and to formulate and understand concepts that enable us to perceive order in complicated situations. Perhaps the most important concept of mathematics is that of function, which provides us with the means to study dependence and change. The study of real functions of a real variable (and later complex functions), particularly in connection with the limit concept, is called analysis. The most effective tool for this study is the infinitesimal calculus that analyzes the relation between functions and their derivatives. The study of number systems and their generalizations is called algebra. Here, the primary concepts are group, ring, field, and module. The last great branch of mathematics is geometry, which now goes far beyond the classical study of the space we live in to include spaces of high dimension and topology, the abstract theory of shape. Pure mathematics is concerned with these concepts and their interrelationships, while applied mathematics considers the relation of mathematical concepts to problems arising in other disciplines. Applied mathematics is not a single subject; rather it is almost as many different subjects as there are other disciplines. (But it would be a mistake to think that applied mathematics is organized in terms of the disciplines to which it is applied.) The concentration in Mathematics is designed to acquaint the student with the most important general concepts underlying the three branches of modern mathematics. Concentration in mathematics will provide an adequate basis for further study in either pure or applied mathematics.

## ADVISING



The department assigns all students a faculty member as their concentration advisor. If you prefer to change your assignment, please talk to Cindy Jimenez in room 334 ([cindy@math](mailto:cindy@math), tel. 617-495-9116). Your advisor can help you plan your coursework, and will sign your study card. How much contact you have with your advisor and how helpful he or she is will depend almost entirely on your initiative. Feel welcome to drop by during his or her office hours or during our 4 pm teas, or to invite your advisor to lunch in Annenberg or at your House, courtesy of Harvard (just ask the checker in the dining hall for the form). Your advisor can help you plan your courses, learn about mathematical research, and apply to grad school.

## ALUMNI



A concentration in mathematics provides a valuable background for many different careers. About half of our seniors go on to graduate school, either in mathematics or in nearby fields. Others pursue professional training in law, business, or medicine, or go on to work in any number of areas, from finance to the arts.

### QUESTIONS?

Jacob Lurie\*, Director of Undergraduate Studies: [lurie@math.harvard.edu](mailto:lurie@math.harvard.edu), 617-495-9493 |  
Cindy Jimenez, Undergraduate Program Coordinator: [cindy@math.harvard.edu](mailto:cindy@math.harvard.edu), 617-495-9116 |

\* Study abroad contact

**Gateway Courses**  
 Suggested and/or  
 Required Courses

First year potential concentrators should enroll in a math course at the appropriate level. This will determine which of the following a first year student enrolls in.

- Math Ma: Introduction to Functions and Calculus
- Math 1a: Introduction to Calculus
- Math 1b: Calculus, Series and Differential Equations
- Mathematics 21a: Multivariable Calculus and Mathematics 21b: Linear Algebra and Differential Equations (fall and spring for a typical student)
- Math 21b: Linear Algebra and Differential Equations
- Mathematics 23a and 23b: Linear Algebra and Real Analysis I and II (fall and spring)
- Mathematics 25a and 25b: Honors Linear Algebra and Real Analysis I and II (fall and spring)
- Mathematics 55a: Honors Abstract Algebra and Mathematics 55b: Honors Real and Complex Analysis (fall and spring)
- Math 101: Sets, Groups and Topology (offered both fall and spring)

**Sample Advanced Courses**

- MATH 137: Algebraic Geometry
- MATH 153: Mathematical Biology-Evolutionary Dynamics
- MATH 110: Vector Space Methods for Differential Equations
- MATH 131: Topology I - Topological Spaces and the Fundamental Group
- MATH 124: Number Theory
- MATH 154: Probability Theory

**Sample Thesis Titles**

- How big is that Cookie? The Integral Geometric Approach to Geometrical Quantities
- Polymer Simulations and DNA T
- Zero-One Laws and Limiting Structures
- Geometry in Algorithms and Complexity: Holographic Algorithms and Valiant's conjecture
- Primes of the Form  $p + ny$
- The Long-run Behavior of Sinai's Random Walk in Random Environment
- From Penrose Tiles to Islamic Architecture, Aperiodic Tiling and Its Construction
- "All Together Now" Linking the Public Goods Game and Prisoner's Dilemma for Robustness Against Free Riders

**Sample Department Research Opportunities**

- One or two Tutorials are offered every semester.
- A Summer Tutorial Program that offers two or three tutorial topics.

**Sample Faculty Research and/or Publications**

- Noam Elkies:
- Number theory, computation, classical algebraic geometry, music
- Curtis McMullen:
- Riemann surfaces, complex dynamics, hyperbolic geometry
- Martin Nowak:
- Mathematical biology, evolutionary dynamics, infectious diseases, cancer genetics, game theory, language
- H-T Yau:
- Probability theory, quantum dynamics, differential equations and nonequilibrium physics
- Michael Hopkins:
- Algebraic topology, homotopy theory, topological field theory
- Mark Kisin:
- Number theory and arithmetic geometry

## WHO WE ARE

Mechanical engineering is a discipline of engineering that uses the principles of physics and materials science for the analysis and design of mechanical and thermal systems. Mechanical engineering is critical to the success of many human enterprises – it plays a central role in the generation and distribution of energy, transportation, manufacturing, and infrastructure development. Nearly every product or service in modern life has been touched in some way by a mechanical engineer.

Because it exists within Harvard's liberal arts environment, the Mechanical Engineering concentration provides students with both the breadth and depth of study needed to excel in this area of engineering. The curriculum emphasizes a solid background in the applied sciences and mathematical analysis, with ample opportunities to apply these fundamentals to real-world issues and learn about state-of-the-art technologies. Students also gain experience in the engineering design process, which is a unique engineering activity that requires creative synthesis and analysis to fulfill specified needs.

Harvard's degree in Mechanical Engineering is a Bachelor of Science (S.B.) degree that consists of 20 four-credit courses. This program was new in the fall of 2012 and was under review for ABET-accreditation in 2015-16. Students interested in the mechanical engineering area at the Bachelor of Arts (A.B.) level should refer to the mechanical and materials science track of the Engineering Sciences concentration. Additionally, students interested in learning more about the other engineering areas should refer to the Biomedical Engineering (A.B.), Engineering Sciences (A.B. or S.B.), or Electrical Engineering (S.B.) concentrations, which are listed in this handbook.

## ADVISING



Students in the engineering concentrations, including Biomedical Engineering (A.B.), Electrical Engineering (S.B.), Engineering Sciences (A.B. & S.B., all tracks), and Mechanical Engineering (S.B.), have a concentration advising team that consists of an Assistant Director of Undergraduate Studies, a Director of Undergraduate Studies, and an individual faculty advisor. In general, the ADUS is the first line of communication for concentration-related questions and forms (including signing study cards), and students should plan to meet regularly with both their ADUS and faculty advisor to discuss their plan of study, academic interests, and career goals. Currently enrolled College students outside of engineering, including pre-concentrators, are encouraged to contact any of the Assistant Directors of Undergraduate Studies who are prepared to discuss all of the engineering options in SEAS.

## ALUMNI



Concentrators in Mechanical Engineering learn how to think critically and develop solutions to a variety of problems, and students can use these skills to address a wide range of real-world issues. Past students have attended graduate school at leading universities in areas ranging from engineering to law to business to medicine, while others have entered the workforce right after graduation with positions at leading consulting, engineering, and business firms.



## Gateway Courses

### Suggested and/or Required Courses



- **ENG-SCI 51:** Computer-Aided Machine Design, fall and spring
- **ENG-SCI 52:** The Joy of Electronics Part 1, fall and spring (**ENG-SCI 153**, **ENG-SCI 154**, or **CS 141** can also fulfill the electronics requirement)
- **Math** (Math 1a,b; Applied Math 21a,b or Math 21a,b)
- **Physics** (Applied Physics 50a,b or Physical Sciences 12a,b or Physics 15a,b)



## Sample Advanced Courses



- ENG-SCI 120: Introduction to the Mechanics of Solids
- ENG-SCI 123: Introduction to Fluid Mechanics and Transport Processes
- ENG-SCI 125: Mechanical Systems
- ENG-SCI 159: Introduction to Robotics
- ENG-SCI 181: Engineering Thermodynamics
- ENG-SCI 183: Introduction to Heat Transfer
- ENG-SCI 190: Introduction to Materials Science and Engineering



## Sample Thesis Titles



- Additive Manufacturing Ice Resurfacing Robot
- Alternative Mechanical System for Satellite Solar Arrays
- Ultrasound-Compatible Cardiac Simulator
- Ori Structures
- Sea Reach: A Scalable Deep Sea Robotic Arm



## Sample Department Research Opportunities



### Research Areas:

- Fluid Mechanics
- Materials Science
- Robotics
- Soft Condensed Matter
- Solid Mechanics
- Surface and Interface Science



## Sample Faculty Research and/or Publications



### Examples of recent faculty research:

- Insect-size robot capable of flying and swimming (Wood)
- Soft robotic glove for combined assistance and at-home rehabilitation (Wood, Walsh)
- Metal-free organic-inorganic aqueous flow battery (Aziz, Gordon, Aspuru-Guzik (CCB))
- Designing 3D material with controllable shape and size (Bertoldi)
- Fiber-reinforced tough hydrogels (Vlassak, Suo)
- Method to turn glass from clear to opaque with the flick of a switch (Clarke)
- Multimaterial 3D printing via active mixing and switching printheads (Lewis)

# MOLECULAR & CELLULAR BIOLOGY

Tracks:

Molecular & Cellular Biology



## WHO WE ARE

The Molecular and Cellular Biology (MCB) concentration emphasizes the intersection of modern research in cellular biology with medicine and society.

It is rooted in the investigation of biological processes based on the study of molecules and their interactions in the context of cells and tissues, and in understanding how the vast information context of the genome orchestrates the behavior of the cell. MCB is therefore ideally suited for students who wish to study molecular and cellular processes at the heart of both normal physiology and disease.

## ADVISING



The Assistant Director of Undergraduate Studies (ADUS, Martin Samuels) meets with concentrators and pre-concentrators to discuss course choices, research opportunities, and career planning. The ADUS also signs study cards. In addition, each concentrator is matched with a mentor from the Board of Tutors in Biochemical Sciences. (For more information, go to [tinyurl.com/MCB-tutorial-board](https://tinyurl.com/MCB-tutorial-board).)

## ALUMNI



MCB graduates often go on to careers in medicine and/or research. Others pursue careers and/or further training in a variety of other fields, including public health, science policy, law and intellectual property, business, education, and science writing. The Board of Tutors in Biochemical Sciences, which runs the MCB tutorial program, recruits some tutors from fields outside of academia. Those tutors are excellent resources for students contemplating a career outside of research or medicine.

**Continued...**

terica serotype Paratyphi A proteins uniquely expressed in humans and not under standard laboratory conditions

**Sample Faculty Research and/or Publications**

- Alex Schier**
- How signaling pathways, transcription factors, chromatin modifications and non-coding RNAs determine the vertebrate body plan during embryogenesis.
  - What genetic and cellular mechanisms regulate behavior in zebrafish?
- Vlad Denic**
- What are the molecular mechanisms of the pathways that maintain protein homeostasis in eukaryotic cells, such as the post-translational targeting of tail-anchored proteins to the endoplasmic reticulum membrane; age-associated changes in cell pathways that respond to protein unfolding; protein and organelle degradation by autophagy?
- Catherine Dulac:**
- Exploring innate social behaviors using molecular, genetic, and electrophysiological techniques.
  - Characterizing the architecture and functional logic of neuronal circuits underlying pheromone signaling?
  - How does genetic imprinting operate in the brain?
- Andrew Murray**
- The Murray lab studies budding yeast, using experimental evolution, genetic analysis, synthetic biology, and cell biology to try to understand the “rules of the game” that explain how cells function and evolve. The Murray lab is interested both in general questions about what determines evolutionary trajectories and the specific mechanisms that organisms invent to produce novel traits. How does biological novelty evolve? How do cells accomplish specific tasks and how did these solutions evolve?
- Susan Mango**
- Transcriptional mechanisms that govern the progression of development over time
  - Tube formation by de novo epithelialization (i.e., How the pharynx becomes an epithelial tube)
  - Hypertrophic growth and metabolism (i.e., The role of the digestive tract during post-embryonic growth and metabolism)
  - Developmental plasticity and its loss during embryogenesis

**Gateway Courses Suggested and/or Required Courses**

- First semester**
- **LS 1a:** An Integrated Introduction to the Life Sciences - Chemistry, Molecular Biology, and Cell Biology OR **LPSA:** Life and Physical Sciences A - Foundational Chemistry and Biology
  - **Math** (according to math placement)
- Second semester**
- **LS 1b:** An Integrated Introduction to the Life Sciences - Genetics, Genomics, and Evolution (spring)
  - **PS 1** or **PS 11**
- Third semester**
- **MCB 60:** Cellular Biology and Molecular Medicine
  - **Chem 17:** Organic Chemistry
  - Concentration Elective
- For a more complete listing, go to: [lifesciences.fas.harvard.edu/files/lifesci/files/mcb\\_preconcentration\\_course\\_sequences.pdf](http://lifesciences.fas.harvard.edu/files/lifesci/files/mcb_preconcentration_course_sequences.pdf)

**Sample Advanced Courses**

- MCB 101: Human Genetics
- MCB 105: Systems Neuroscience
- MCB 111: Mathematics in Biology
- MCB 120: Global Health Threats
- MCB 121: The Microbes
- MCB 125: Molecular Basis of Behavior
- MCB 145: Neurobiology of Perception and Decision Making
- MCB 176: Biochemistry of Membranes
- MCB 186: Circadian Biology - From Cellular Oscillators to Sleep Regulation
- MCB 187: Genome Editing - Progress and Frontiers

**Sample Thesis Titles**

- SAD kinases and neuronal polarization: examination of regulatory phosphorylation sites
- Temperature Compensation in the Three-Protein Cyanobacterial Circadian Clock
- The critical role of host lipid metabolism in determining the infectivity of Hepatitis C virus
- The transcription factor BATF3 may be a novel regulator of angiogenesis and breast cancer progression: An in vitro and in vivo study
- Dissecting the mechanism of double stranded RNA recognition by RIG-I like receptor MDA5
- Identification of immunogenic Salmonella en-

# MUSIC

Tracks: Music

## WHO WE ARE

The concentration in Music provides an understanding of music in diverse cultural and historical contexts as well as a solid foundation in theory, analysis, composition, and criticism.

While the Department of Music is not in itself a school of music with a performance department, all of our courses support the intellectual developments of musicians, and several of our courses incorporate or focus on performance. Students begin the concentration in Music with courses in Western music history and repertory, world music, and music theory. Students are then offered a wide range of advanced, specialized electives in music theory, composition, musicology, ethnomusicology, and performance-related areas that build on the foundations laid in the introductory courses. Offered on a rotating basis, courses reflect the specialties of our academic faculty: eighteenth-century material culture, diaspora studies and migration, opera, jazz, music and politics, early music, musical theater, music and media, global pop, improvisation, hip hop, musics from around the world, history of the book, film, American and European modernism, music and cognition, music and ecology, new music of the 21st-century, and cross-cultural composition.

Electives allow students to engage with musical questions at a deep level. In musicology and ethnomusicology, these courses take the form of proseminars for small groups that explore in detail selected musicological issues and direct students toward significant independent projects. Several advanced courses in acoustic and electronic composition are given each year, along with occasional offerings in orchestration and other specific compositional topics.

Advanced theory and analysis courses include such topics as tonal and post-tonal analysis, jazz harmony, and modal and tonal counterpoint. Performance-oriented courses include chamber music, jazz, South Indian, West African, historical performance practice, improvisation, conducting, and creative music.

The department welcomes joint concentrations with other departments that allow them. Joint concentrators need to fulfill a reduced number of course requirements. A senior thesis is required on a topic in which both fields are represented. Theses

may take the form of an original composition, a senior recital, or a written project.

## ADVISING



All students are required to confer with the Director of Undergraduate Studies or the Assistant Director of Undergraduate Studies at the outset of their concentration or joint concentration, in order to develop an overall plan for fulfillment of requirements. All concentrators will continue to be advised by one of these two officials at the start of each term.

## ALUMNI



Harvard graduates in music are composers, performers, administrators, teachers, lawyers, start-up founders, physicians, and many other things. Recent graduates work at Jazz at Lincoln Center, the Metropolitan Opera, the Hartford Symphony Orchestra, M.I.T., Haverford College, Google, on Broadway in “Hamilton,” and various legal and medical institutions.

**Gateway Courses**  
Suggested and/or  
Required Courses

- Foundation for Music Concentration
- **Music 51a and 51b:** Theory
  - **Music 97a and 97b:** Music History and Repertory
- General and Introductory Courses
- **Music 1:** 1000 Years of Listening
  - **Music 2:** Foundations of Tonal Music
  - **Music 4:** Introduction to Composition
  - **Hum 11b:** Art of Listening
  - **AI 24:** First Nights
  - **AI (tbc):** Opera
  - **FrSemr 38V:** Film Music and Film Sound
  - **FrSemr 60F:** Tell a Personal Story Through Sound
  - **FrSemr 60J:** Musical Jokes from the Middle Ages to the Present Day

**Sample Advanced Courses**

- Music 192r: Understanding Beethoven
- Music 193r: Latino Musics in the US
- Music 193r: Post-Classical Music in the 21st Century
- Music 194r: Country Music Studies

**Sample Thesis Titles**

- Kapena Baptista – “Lovely Hula Hands”: Native Hawaiian Identity in Hapa-Haole Music and Hula Performance
- Joshua Campbell – “Paris tout entier”: Musical Histories of Improvisation and Blackness from African-American Musicians in Paris, 1920 to Now
- Eric Corcoran – Allegory in Gesamtkunstwerk – Wagner’s Der Ring des Nibelungen

**Sample Department Research Opportunities**

- Office of the Arts: central resource for arts information, opportunities, programs, and support.
- Sound Studies Lab (Slab): cutting edge tools for composition, audio capture and recording, digital media and video editing, audio mixing, mastering, and restoration.
- Gamelan Studio: largest American-built gamelan; accommodates over 30 instrumental players, plus vocalists.
- Ethnomusicology Lab (Ethnolab): audio and video editing suites for transcribing, analyzing and publishing materials collected in the field; field equipment can be checked out by students & faculty for

**Continued...**

- fieldwork projects.
- Harvard University Studio for Electro-acoustic Composition (HUSEAC): studio with Mac-based workstations with access to Pro Tools, Nuendo, Max/MSP+Jitter, the IRCAM Forum suite, Csound, and much more.

**Sample Faculty Research and/or Publications**

- Carolyn Abbate:
- Research: opera history, music and philosophy, ephemeral art, musical automata from Mozart to Ravel, film and sound studies. Outside of academia, has worked as a dramaturg and director. Most recent book co-authored with Roger Parker *History of Opera: The Last Four Hundred Years* (2012).
- Hans Tutschku:
- Composition: music for film, theatre, ballet, sound installations and interactive sound sculptures, instrumental and electroacoustic music. A main focus of his work is improvisation with live-electronics. Has toured more than 30 countries with his Ensemble für Intuitive Musik Weimar.
- Parker String Quartet:
- GRAMMY Award-winners
- Yosvany Terry:
- GRAMMY Award-nominated, 2015 Doris Duke Artist Award, composer-saxophonist-percussionist
- Andrew Clark:
- Director of Choral Activities
- Federico Cortese:
- Conductor of Harvard-Radcliffe Orchestra
- Jill Johnson:
- Dance Director; former soloist with The National Ballet of Canada, principal dancer and researcher with Ballet Frankfurt

# NEAR EASTERN LANGUAGES & CIVILIZATIONS

Tracks:

*The Middle East in Antiquity  
Histories & Cultures of Muslim  
Societies (Islamic Studies)  
Jewish Studies  
Modern Middle Eastern Studies*



## WHO WE ARE

The Department of Near Eastern Languages and Civilizations introduces students to the ancient and modern peoples, languages, cultures, and societies of the Near and Middle East. Loosely defined as stretching from Morocco in the west to Iran and Afghanistan in the east, the region is home to some of the world's most influential cultural and religious systems. The influence of its languages, literatures and material culture has spread across the world, from the earliest permanent human settlements to today's news headlines. The study of the Near and Middle East is thus a key area of academic inquiry for its political, economic and cultural significance on the international stage through history. Undergraduate concentrators develop skills in one (or more) of the languages and cultures of the region on their way to choosing from a wide variety of directions of study. The Department offers instruction in a range of thematic courses, and languages (ancient and modern), including Akkadian, Arabic, Aramaic, Armenian, Egyptian, Hebrew, Persian, Sumerian, Turkish, and Yiddish. The concentration provides a solid grounding in the student's area of focus and offers an in-depth look at how scholars explore a region that continues to be so influential in the world of today. Students choose one of four specific tracks for concentration: The Middle East in Antiquity, Histories and Cultures of Muslim Societies (Islamic Studies), Jewish Studies, or Modern Middle Eastern Studies. All tracks have a requirement that involves the study of at least four terms of a language of the region.

## ADVISING



Every concentrator is assigned a faculty advisor in their field of study who advises them on developing their plan of study, and who signs their study card. Generalist advising is also provided by the Director of Undergraduate Studies (DUS; Gojko Barjamovic).

## ALUMNI



Concentrators go on to careers in such fields as journalism, politics and diplomacy, business, religious affairs, and academic teaching and research.


**Gateway Courses**
  
Suggested and/or
  
**Required Courses**


- NEC 101: Historical Background to the Contemporary Middle East  
Middle East in Antiquity
  - Ancient Near East 103: Ancient Lives
  - Culture and Belief 23: From the Hebrew Bible to Judaism, From the Old Testament to Christianity
- Jewish Studies
- Aesthetic and Interpretive Understanding 29: Modern Jewish Literature
  - Culture and Belief 27: “Among the Nations:” Jewish History in Pagan Christian and Muslim Context
- Histories and Cultures of Muslim Societies (Islamic Studies)
- Aesthetic and Interpretive Understanding 54: For the Love of God and His Prophet - Religion, Literature and the Arts in Muslim Cultures
  - Religion 1806: The Vocabulary of Islam
- Modern Middle Eastern Studies
- **The Modern Middle East 100** (formerly Near Eastern Civilizations 100): Approaches to Middle Eastern Studies (required for concentration and secondary field)
  - Islamic Civilizations 170: Islam, Modernity and Politics
- For a more complete listing, visit: [nelc.fas.harvard.edu/gateway-courses](http://nelc.fas.harvard.edu/gateway-courses)


**Sample Advanced Courses**


- ANE 117: Biblical Archaeology
- ARABIC 243: Advanced Reading in Classical Arabic
- PERSIAN 158: Modern Persian Poetry and Prose
- YIDDISH 115: The Yiddish Short Story
- ISLAMICV 158: Introduction to the Qur’an
- TURKISH 140: Introduction to Ottoman Turkish
- AKKAD 144: Akkadian Divination Texts
- JEWISHST 151: Introduction to Jewish Mysticism


**Sample Thesis Titles**


- Libya: Factors of a (Un?) Democratic Transition
- The Territory of War and the Territory of Islam: The Reconstitution of the World in the Statements of Osama Bin Laden
- Ashkenazi Revolution: The Politics of Reaction, Heresy, and Suppression in 1960s Israel
- Translating the Divine: ... in the Greek and


**Continued...**


- Aramaic Texts of the Hebrew Bible
- From Mesopotamia to Michigan: Identity and Political Preferences of the Chaldean-American Diaspora


**Sample Faculty Research and/or Publications**


- Amr Ahmed:
- Publication: “La “*Révolution littéraire*,” *étude de l’influence de la poésie française sur la modernisation des formes poétiques persanes au début du XXe siècle* [“*The Literary Revolution*.” *The Influence of French Poetry on the Modernization of Persian Poetic Forms in the Early 20th Century*]” (Austrian Academy of Sciences Press, 2012)
- Gojko Barjamovic:
- Publication: “*A Historical Geography of Anatolia in the Old Assyrian Colony Period*” (2011).
- Shaye J.D. Cohen:
- Research: the boundary between Jews and gentiles and between Judaism and its surrounding cultures. What makes a Jew a Jew, and what makes a non-Jew a non-Jew? Can a non-Jew become a Jew, and can a Jew become a non-Jew? How does the Jewish boundary between Jew and non-Jew compare with the Jewish boundary between male Jew and female Jew?
  - Publication: *From the Maccabees to the Mishnah* (1987; second edition 2006)
- Malika Zeghal:
- Research focuses on Islamist movements and in the institutionalization of Islam in the Muslim world, with special focus on the Middle East and North Africa in the postcolonial period and on Muslim diasporas in North America and Western Europe. General interest in the circulation and role of religious ideologies in situations of conflict and/or dialogue.
- William Granara:
- Specializes in the history and culture of Muslim Sicily. Has written on cross-cultural encounters between Islam and Christendom throughout the Middle Ages, as well as the poetry of Ibn Hamdis, Sicily’s most celebrated Arab poet. His work on literary criticism focuses on postcolonialism and cross cultural poetics.

# NEUROBIOLOGY

Tracks: *Neurobiology*  
*Mind, Brain, Behavior*

## WHO WE ARE

Neurobiologists explore what is arguably the least understood and most important area of biology: how billions of electrically charged neurons create our rich sensory, emotional, and intellectual life (and no less than all animal behavior!). Neurobiology as a field is an amalgam of all biological approaches: genetics, chemistry, molecular biology, mathematics, cell/network biology, and cognitive science. Neurobiologists study every aspect of the brain: e.g., sensation, decision-making, movement, development, degeneration, and disease. As such, when you become a Neurobiology student you will get broad training as a biologist as well as a new perspective on what it means to be a human. Neurobiology encompasses phenomena on vastly different scales – from molecules to societies. The Neurobiology concentration allows students to choose and focus on the topics and approaches that they are most interested in from more than 30 neurobiology courses from 10 different departments.

The concentration has two tracks: 1) Neurobiology and 2) Mind, Brain, and Behavior (MBB). Students in the MBB track receive credit for approved courses that study the mind using different approaches (e.g., Psychology, Philosophy). All MBB track students conduct independent research and complete a senior thesis. While research is optional for the Neurobiology track, to be eligible for honors, students must enroll in an independent research course – Neurobiology 91 or Ls100r – for one semester. Students interested in research may begin at any time, although we recommend that most

## ADVISING



Primary concentration advising is provided by the Assistant Director of Undergraduate Studies (ADUS), Ryan Draft, and the Neurobiology Advisor, Laura Magnotti.

## ALUMNI



Many students assume that concentrating in Neurobiology will lead them in only two directions – medical school or research. It is not true! There are hundreds of career possibilities in the area of neurobiology. Why? The brain is necessarily involved in everything we do, and as a result, an understanding of neuroscience can bring an extremely important perspective to almost any field. Moreover, the concentration provides scientific training and strong analytical skills that are valuable for many different career paths. Our graduates commonly go on to careers in teaching and education, health services, research and biotech, business and management, law, government and policy, writing and publishing, general and life science consulting, non-profit organization management, and the creative sector.

**Gateway Courses**  
Suggested and/or  
**Required Courses**

First year

- *Life Sciences 1a* or *Life & Physical Sciences A* (fall)
- *Life Sciences 1b* and/or a related fields course (spring)
- Math or Applied Math

Second year

- ***Molecular and Cellular Biology 80 OR 81. Neurobiology of Behavior*** (fall)
- ***One of the four 'Foundational Courses'***: OEB 57, MCB 105, MCB 115, MCB 125
- During the sophomore year, students may consider taking a related fields course as well.

**Sample Advanced Courses**

We offer over different 40 courses to choose from (more in the MBB Track!). These courses come from > 10 departments and cover the breath of study of the brain: from genetics to cells to circuits to behavior! Here are some examples, but visit our [website](#) to see the entire list...

- OEB 145: Genes and Behaviors
- Neurobiology 104: The Neurobiology of Drug Addiction
- MCB 146: Experience-based Brain Development
- Psych 1201: Your Brain on Drugs - Psychopharmacology
- Psych 1401: Computational Cognitive Neuroscience
- SCRB 180: Repair and Regeneration in the Mammalian Brain
- LS100r: Experimental Research in the Life Sciences

**Sample Thesis Titles**

Our student researchers don't just learn about the brain, they discover it! Students can conduct research at Harvard College, Harvard Medical School, or any of the Harvard hospitals (MGH, Brigham and Women's, etc).

- Plasticity of dopaminergic neural circuits in the mouse olfactory bulb.
- Microglia Mediate Synapse Loss In Early Stage Alzheimer's Disease Via the Classical Complement Cascade.
- Characterization of the Activity of Glutamatergic Neurons in the Pedunculopontine Tegmentum During Decision-Making.
- Use of Stem Cells Loaded With Hyaluronidase-Expressing Oncolytic Viruses To Treat Malignant Brain Tumors.
- Development and neural bases of happy and angry facial processing in infants.
- Investigating Differences in Neural Activity of Young Children with and without Attention Deficit/Hyperactivity Disorder.

**Continued...**

- Optogenetic manipulation of hippocampal place cells causes impairment of stereotyped tracking behavior

**Sample Department Research Opportunities**

- Research: There are 250+ labs working in Neuroscience at Harvard College and the Harvard hospitals. You can work at any of them! Concentration advisors (Ryan and Laura) can help you get started.
- Tutorial Courses: Neurobiology offers optional junior year tutorial courses (year-long), which provide a great setting to study the brain at the level of a professional scientist. These small courses (<15 students) teach you to learn about neurobiology by reading the primary literature directly.
- Summer Abroad Programs: Neurobiology students can get course credit for participating in Harvard Summer Abroad programs in Trento Italy (MBB), Oxford, England, and Tokyo Japan (RIKEN). We also help place students in summer internships in Europe (Portugal) and India (Bangalore).
- Expert Advisors: Neurobiology has two dedicated advisors who are available to get to know you personally and provide you with all the information you need to get the most out of your concentration.
- Check out our website ([lifesciences.fas.harvard.edu/neurobiology](http://lifesciences.fas.harvard.edu/neurobiology)) for lots more info about Neurobiology!

**Sample Faculty Research and/or Publications**

- Venki Murthy:**
- The central goal of this lab is to understanding how the signals and structure of the brain give rise to behavior. In particular, the lab studies how mammalian brains detect and recognize odor signals, and how subsequent neural activity from these odors can alter behavior.
- Catherine Dulac:**
- This group explores the molecular and neuronal basis of innate social behaviors in the mouse. This includes projects studying genomic imprinting and its impact on brain development and function.
- David Cox:**
- The focus of this laboratory is to understand the computational underpinnings of object recognition on two fronts: 1) learning from the neurophysiology of natural vision systems, and 2) using these findings to build better artificial (computational) object recognition systems.
- Hopi Hoekstra:**
- This group is interested in understanding the genetic basis of naturally occurring behaviors, including: burrowing behavior, climbing behavior, and mate choice. These behaviors differ among closely related species, which allows for a dissection of the genetic architecture that gives rise the brain.

# PHILOSOPHY

Tracks: *Philosophy*  
*Mind, Brain, Behavior*

## WHO WE ARE

Philosophy studies many of humanity's fundamental questions. Some of these questions arise when we reflect on the most basic and most widely shared elements of human experience:

- What kind of life should we live?
- What kind of society should we want?
- What makes one system of belief better than another? Its being more rational?
- What are the limits of human knowledge?

Whether in the street, court, classroom, or lab, we often assume implicit answers to these questions. Some of those answers, and even the questions themselves, are the product of a centuries-old philosophical tradition that has shaped and reshaped our society and culture. Philosophy seeks to reflect on these questions and answers in a systematic, explicit, and rigorous way – by studying the tradition, relying on careful argumentation, and drawing from outside fields as diverse as economics, literature, religion, law, mathematics, the physical sciences, and psychology. Those fields raise philosophical questions of their own:

- Does neuroscience show us that we lack free will?
- How should we interpret quantum mechanics?
- What is the source of political rights? What are the limits and obligations of the state?
- When and why is punishment justified? How should a constitution be interpreted?
- What is beauty? Are there “objective” standards for works of art?

Philosophical questions are everywhere. If you find yourself drawn to them, studying philosophy in college is likely the best opportunity in your life to address them.

## ADVISING



Concentration advising is provided by the Director of Undergraduate Studies (Cheryl Chen), the Associate Head Tutor (Sean Kelly), the Assistant Head Tutor (Paul Marcucilli), and the Undergraduate Coordinator (Emily Ware). All four are available to meet with students during office hours or by appointment to discuss anything related to the concentration, including course selection and to sign study cards. Students in the Mind, Brain, and Behavior track meet regularly with the MBB advisor, Sean Kelly ([sdkelly@fas.harvard.edu](mailto:sdkelly@fas.harvard.edu)). For more information, contact the Undergraduate Coordinator, Emily Ware ([eware@fas.harvard.edu](mailto:eware@fas.harvard.edu)).

## ALUMNI



Harvard philosophy concentrators have gone on to pursue diverse and rewarding careers in law, finance, consulting, business, internet startups, medicine, journalism, the arts, non-profits, education, and academia (both in philosophy and in other academic disciplines). While the training in clear, systematic writing equips students for a wide range of careers, alumni often remark that their undergraduate study in philosophy was one of the most intellectually rewarding experiences of their lives, and that this – more than any set of argumentative or communicative skills – was its most valuable feature. To learn more, visit the department's alumni page: <http://philosophy.fas.harvard.edu/alumni>

**Gateway Courses**  
Suggested and/or  
Required Courses



Fall:

- PHIL 14: Morality and the Good Life - An Introduction to Ethics
- PHIL 19: God, Perfection, Evil - An Introduction to the Philosophy of Religion
- PHIL 33: Indian Philosophy
- PHIL 34: Existentialism in Literature and Film
- ER 13: Self, Freedom, and Existence
- EMR 17: Logical Reasoning
- HUM 10a: The Humanities Colloquium
- FRSEM 23c: Exploring the Infinite
- FRSEM 60y: The Moral Compass
- FRSEM 60s: Death - Its Nature and Significance

Spring:

- PHIL 3x: Appearance and Reality
- PHIL 6: Ancient Ethics and Modern Morality
- PHIL 7: Ancient Greek Philosophy
- PHIL 17: Feminist Political Philosophy
- CB 31: Saints, Heretics, and Atheists - An Historical Introduction to the Philosophy of Religion
- HUM 10b: The Humanities Colloquium

**Sample Advanced Courses**



- PHIL 101: Plato
- PHIL 132: Marx and Marxism
- PHIL 140: Fundamentals of Logic
- PHIL 156: Philosophy of Mind
- PHIL 174a: Ethics and Animals
- PHIL 177: Educational Justice
- PHIL 192: Buddhist Philosophy

**Sample Thesis Titles**



- Can One Derive “Ought” from “Is”?
- In Search of Not-Self
- “IT WAS HIS WIFE”: the Moral Relevance of Projects, Relationships, and Loving Attention
- The Evolutionary Dynamics of Distributive Justice

**Sample Department Research Opportunities**



- Harvard Review of Philosophy: an annual journal of professional philosophy distributed to over a thousand philosophers, libraries, and universities throughout the world. The Review is edited and published by undergraduate philosophy students at Harvard University.
- Harvard College Organization for Open Philosophy (HOOP): an undergraduate organization that seeks to advance knowledge and appreciation of philosophy by creating a welcoming environment for collaboration among students from all backgrounds and areas of intellectual interest.

**Sample Faculty Research and/or Publications**



- Selim Berker:
- *“The Normative Insignificance of Neuroscience,”* (2009).
- Rusty Jones:
- *“Felix Socrates? (Was Socrates Happy?),”* (2013).
- Francis Kamm:
- *Morality, Mortality, Vol. 1: Death and Whom to Save From It,* (1993).
- Christine Korsgaard:
- *“A Kantian Case for Animal Rights,”* (2012).
- Susanna Rinard
- *“Why Philosophy Can Overturn Common Sense,”* (2013).

**Concentration Pathways**



- Logic
- Metaphysics, Epistemology, Mind, Language, Science
- Ethics, Politics, Aesthetics
- History of Ancient or Medieval Philosophy
- History of Modern Philosophy (Pre-20th Century)

# PHYSICS

## WHO WE ARE

**P**hysics is the paradigmatic mathematical science. The concentration in Physics, administered by the Department of Physics, encourages students to explore the remarkable range of physical phenomena that the laws of physics explain and allow us to control. Many concentrators seek an understanding of the subtle, profound, and fundamental laws – relativity, quantum mechanics, and the basic force laws – that govern the behavior of matter and energy in our Universe. These studies may involve the smallest units of matter, molecules, atoms, nuclei, and sub-nuclear particles, or they may focus on remarkable emergent properties like superconductivity that appear when the smallest units are put together into bulk matter, or they may address more complex systems like oceans and atmospheres, stars, and living matter. Physics makes use of cutting edge technology and theory to push our understanding of these systems to amazing extremes of size, temperature, electric and magnetic fields, information density and complexity, and in turn the phenomena we study lead to new technologies that allow us to explore even further.

## ADVISING



Students in the Physics and Chem/Phys concentrations automatically have Prof. Howard Georgi (Head Tutor) and Dr. David Morin (Associate Head Tutor) as academic advisors. Additionally, each student is given an individual concentration advisor, chosen from among the faculty; this advisor signs the student's study card. Carol Davis (Undergraduate Student Coordinator) handles many of the administrative and student-life aspects of the concentrations.

## ALUMNI



A concentration in Physics provides a foundation for subsequent professional work in physics, and also for work in astronomy, biophysics, chemical physics, engineering and applied physics, earth and planetary sciences, geology, computer science, and the history and philosophy of science. Less obviously perhaps, the intellectual attitudes in physics – blending imagination, prediction, observation, and deduction – provide an excellent base for subsequent graduate work in professional schools of medicine, education, law, business, and public administration.

## QUESTIONS?

Howard Georgi\*, Head Tutor: [georgi@physics.harvard.edu](mailto:georgi@physics.harvard.edu), 617-496-8293 |

David Morin\*, Associate Head Tutor: [morin@physics.harvard.edu](mailto:morin@physics.harvard.edu), 617-495-3257 |

\* Study abroad contact

 **Gateway Courses**   
**Suggested and/or**  
**Required Courses**

- Most Physics students will begin their physics program with mechanics, in Physics 15a or 16, and continue with Physics 15b and c (in either order). However, it is also possible to get started by taking Physical Sciences 12a/b or Applied Physics 50a/b. Students in these courses who are interested in the Physics concentration should consult the Head Tutor or Associate Head Tutor, who will work with them to design an appropriate plan of study.
- Mathematics is an indispensable tool in physics, and students will find it very useful to improve their math skills early in their academic careers, by taking two courses at the Math 21 level, along with any needed prerequisites.
- In some subfields of physics (condensed matter, for example), the study of chemistry is very important. And almost all physics students will find it useful to dip into chemistry to see how this neighboring science approaches similar problems. We strongly recommend Physical Sciences 10 (which counts as a physics course for the concentration) because it combines statistical mechanics and quantum mechanics, two of the most important topics in physics and chemistry, at an accessible level.

 **Sample Advanced Courses** 

After the initial sequence of courses in Mechanics and Special Relativity, Waves, Electricity and Magnetism and Quantum Mechanics, students can choose to get a broad view of subareas with 100-level courses like Physics 145 (Particle Physics), Physics 175 (Optical Physics), Physics 181 (Statistical Mechanics – strongly recommended for all students), Physics 195 (Condensed Matter Physics) or they may choose to take graduate courses to focus more intensively in a particular area.

 **Sample Thesis Titles** 

- Electron Transport in Bilayer Graphene PN-junctions
- Nonlinear Mechanics of Biopolymer Networks
- Optical Lattices in Atom Interferometry: An Analytical Treatment and Proposal of Applications
- A Comparison of Undergraduate Physics Pedagogy at Radcliffe and Harvard: 1895-1950

 **Continued...** 

- Enhancing ZH→l b b Searches with Multiple Interpretations in the ATLAS Detector

\*Note that many honors physics students do not write a thesis, choosing instead a different capstone experience, such as submitting their research for publication or completing an important series of graduate courses.

 **Sample Department Research Opportunities** 

We purposely don't have a centralized list of available projects for two reasons. (1) It is impossible to keep up to date. Jobs get created and taken far too often. (2) Sometimes professors think up projects on the spot (or they just realize that they do in fact have a job for one more undergraduate) when a student contacts them. If a professor isn't on the list, this might give students the false impression that there isn't anything available.

 **Sample Faculty Research and/or Publications** 

Research in a number of areas: Astrophysics and Astronomy, Experimental Atomic, Molecular, and Optical Physics, Theoretical Atomic, Molecular, and Optical Physics, Biophysics, Computational Physics, Experimental Condensed Matter Physics, Theoretical Condensed Matter Physics, Environmental Modeling & Risk Analysis, Experimental High Energy Physics, Theoretical High Energy Physics/String Theory, Experimental High Pressure Physics, History of Physics, Experimental Low Temperature Physics, Mathematical Physics, Nuclear Physics

# PSYCHOLOGY

## WHO WE ARE

Psychology is the scientific study of the mind. Observing, experimenting, and analyzing human and other minds is our focus. How we do this varies greatly. We can, of course, look at the brain itself to understand the mind and we increasingly do so, as new technologies allow. But the measure of behavior is our primary method to understand the mind.

We attempt to answer questions such as:

- How do we perceive the physical world?
- How do we make sense of the social world?
- Can we really understand the minds of others?
- Do the groups others belong to matter?
- How do memories form and how do we forget?
- What are the rules by which we reason and think?
- How much of our behavior is influenced by conscious mental processes and how can we study our own consciousness?
- What's the role of emotion as expressed in the joy, surprise, sadness, anger and fear of everyday life as well as in depression, schizophrenia, and other disorders?
- What are the causes of these kinds of disorders, and how can they be treated?
- How do social cognition and other cognitive processes, including the use of language, develop from infancy to adulthood?

To answer these and other questions about the mind, psychologists pay attention to: evolutionary factors; the biological bases of behavior; cultural and social inputs; and day-to-day situations in which individuals find themselves.

All members of the department share the common goal of understanding mind, brain, and behavior through empirical investigation, and their teaching and research reflect this goal. Most of the research conducted in Harvard's Department of Psychology concerns basic psychological processes, such as attention, perception, memory, categorization, reasoning, decision-making, language, cognitive and social development, social cognition, intergroup relations, and morality. In addition, some members of the department conduct research on the etiology, development, and treatment of psychopathology.

## ADVISING



Freshmen and sophomores can speak with the Undergraduate Office Staff (listed below) for questions and advising. Email or drop-in hours are easiest, but you can also request an appointment. For upperclassmen, psychology has a set of graduate student advisors assigned by house who sign study cards and can advise on all matters such as requirements, courses, possible careers, etc. Students may also speak with Head Tutor George Alvarez about psychology as a field, research, and careers.

First year students may contact us in the Undergraduate Office at [psychology@wjh.harvard.edu](mailto:psychology@wjh.harvard.edu) to ask questions or set up a meeting.

Additionally, we have weekly drop-in advising hours you can find here: [wjh.harvard.edu/psych/ug/advising/PreConc.html](http://wjh.harvard.edu/psych/ug/advising/PreConc.html)

We encourage all upperclassmen, including undeclared sophomores, to contact the psychology advisor assigned to your house listed here: [wjh.harvard.edu/psych/ug/advising/CA.html](http://wjh.harvard.edu/psych/ug/advising/CA.html)

## ALUMNI



Because of its natural connections to both the life sciences and the humanities, Psychology provides concentrators with a strong foundation from which to pursue careers in business, law, medicine, or government, as well as to prepare for higher education (master's and doctoral degrees) in psychology, neuroscience, and related fields. In addition to these areas, our alumni have commonly gone into many fields such as other clinical/social work fields, education, non-profit work, tech, and design.

*Though it is administratively housed in the division of Social Science, Psychology's faculty and curricular offerings bridge both Social Sciences and Natural Sciences, including a track that is part of the Life Sciences cluster of concentrations.*

## Gateway Courses Suggested and/or Required Courses

- First, take:  
**Science of Living Systems 20:** Psychological Science - (fall or spring) (required for all concentrators and as a prerequisite for all psychology courses – can skip with a Psychology AP score of 5 or an IB score of 7)
- Then, take any two of:  
**Psychology 14:** Cognitive Neuroscience  
**Psychology 15:** Social Psychology  
**Psychology 16:** Developmental Psychology  
**Psychology 18:** Abnormal Psychology  
**Science of Living Systems 15:** Origins of Knowledge, Developmental Psychology  
**Molecular and Cellular Biology 80:** Neurobiology of Behavior
- If considering the CNEP track, Take at least one of : LPSA , LS1a, LS1b, LS 50a

## Sample Advanced Courses

- PSY 980u: Psychological Challenges of Adolescence and Early Adulthood
- PSY 1201: Your Brain on Drugs - Psychopharmacology
- PSY 1401: Computational Cognitive Neuroscience
- PSY 1503: Psychology of Close Relationships
- PSY 1750: Free Will, Responsibility and Law
- PSY 1861: Anxiety Disorders

## Sample Thesis Titles

- Rethinking Butterflies: The Public Speaking Effects of Arousal Reappraisal and Social Anxiety
- Ingroup Love Versus Outgroup Hate: Attitudes Among Members of Competitive Intergroup Rivalries
- Using Transcranial Direct Current Stimulation to Examine the Dorsolateral Prefrontal Cortex's Role in Intergroup Empathy
- The Dissociation between Language and Early Theory of Mind Reasoning in Toddlers

## Sample Department Research Opportunities

Students can conduct research in nearly 30 different faculty and affiliated laboratories in the broad areas of psychology represented in the department: Cognition, Brain, & Behavior; Developmental Psychology; Clinical Science; and Social Psychology. About 80% of psychology students work in a lab for a semester or more. Students can volunteer or receive academic credit, or paid opportunities may be available.

Psychology-related summer research experiences can be found through BLISS and PRIMO, and students who obtain lab positions in the department are eligible for HCRP and, in some cases, PRISE. See <http://uraf.harvard.edu/all-organize-term>

Students have opportunities to learn brain imaging techniques such as fMRI, tDCS, and TMS.

## Sample Faculty Research and/or Publications

Joshua Green (Social Psychology):

- Studies the mechanics of moral thinking and complex thought more generally, including cooperation, conflict-resolution, and religion. Much of his research has focused on the respective contributions of “fast” automatic processes (such as emotional “gut reactions”) and “slow” controlled processes (such as reasoning and self-control).

Jill Hooley (Clinical Science):

- Studies severe forms of mental disorders such as schizophrenia, depression, borderline personality disorder and self-injurious behavior, and examines factors involved in recovery and relapse.

Max Krasnow (Cognition/Brain/Behavior):

- Studies the evolutionary origins and computational designs of the mechanisms underlying human cooperation and social behaviors such as generosity and trust.

Jesse Snedeker (Developmental):

- Studies many facets of language development, comprehension, production and representation, with a primary interest in how language conveys meaning. She studies typically-developing children, adults, and a variety of special populations (e.g., children with cochlear implants, international adoptees, high-functioning children on the autism spectrum).

# RELIGION, COMPARATIVE STUDY OF

Tracks:

Two major religious traditions  
Single religious tradition in  
comparative context  
One tradition and one theme  
Joint concentration



## WHO WE ARE

Religion is momentous, controversial and influential. Religious commitments and institutions are cited daily as sources of the very best and worst in individual, political and communal life. A glance at the news and a look at history make it clear that there has never been a greater need for close study and understanding of the world's religious traditions in order to better understand global cultures and current events, to interpret history and literature intelligently, and to develop a more penetrating sense of our shared humanity. Although human beings have always practiced what we now call "religion," the term itself is a modern category. The undergraduate concentration in the Comparative Study of Religion at Harvard – founded in 1974 – is relatively new. Given the staggering range of religious phenomena throughout human history and across the world, the study of religion has developed into the most interdisciplinary of undergraduate concentrations, bringing together humanistic and social scientific methods. Students and scholars approach religion through the varied disciplines of philosophy, history, sociology, political science, anthropology, literary and scriptural interpretation and cultural studies. Harvard's concentration in the Comparative Study of Religion is a vibrant community comprised of students who are deeply committed to their work, and the nation's most distinguished teaching faculty in the study of religion. Students interact regularly with faculty and graduate students who share their interests. The program provides students with an understanding of the religious traditions of the world through study of sacred texts and rituals; philosophy, literature and theology; and the lived experiences and history of participants in the tradition. Courses engage life's biggest questions including the meaning of life and death, humanity and divinity, good and evil, sacrifice and community. Course work exposes students to central concepts in the field such as god(s), ritual, gender, authority, orthodoxy, scripture and prophecy. Anthropological, historical, philosophical, phenomenological, sociological and literary approaches open religion to closer analysis and deeper understanding.

## ADVISING



Advising in the Comparative Study of Religion is one of the concentration's strongest features. Sophomores entering the concentration are assigned a faculty advisor in their field of interest who meets with them two or three times per term to discuss courses and to help shape the student's plan of study. Programs of study are designed for each student in consultation with the DUS and the student's faculty advisor. Junior tutorials are small, designed around student interests and led by advanced graduate students at the cutting edge of their field who students consult as they consider the option of writing a senior thesis. The ADUS joins the advising team for seniors, and students writing an honors thesis have both faculty and doctoral student advisors, in addition to the support of the ADUS.

## ALUMNI



Most of our alumni pursue meaningful and successful careers in fields such as business, law, medicine, politics, public service, scholarship, government, creative art and teaching, while some graduates continue their study of religion in graduate or professional programs. Recent graduates are studying at Harvard Law School, teaching with Teach for America, pursuing graduate work at Cambridge University, practicing medicine and starring in television roles. The Comparative Study of Religion is an excellent interdisciplinary concentration in the liberal arts because it prepares graduates to understand current events and global cultures intelligently while developing a deeper and more reflective sense of humanity. Our alumni attest that the study of religion, the critical thinking skills, and the refined writing ability they gained in this concentration have been significantly important to them in making sense of current events and global politics, and in succeeding in their workplaces and communities. Many of our graduates have a strong interest in service and are committed to working in their chosen profession to make the world a better place.

### QUESTIONS?

Courtney Bickel Lamberth\*, Director of Undergraduate Studies: [lamberth@fas.harvard.edu](mailto:lamberth@fas.harvard.edu), 617-496-1018 |  
Kera Street, Assistant Director of Undergraduate Studies: [kstreet@fas.harvard.edu](mailto:kstreet@fas.harvard.edu), 617-496-1010 |

\* Study abroad contact



## Continued...

students both in the pursuit of the academic study of religion and in preparation for leadership in religious, governmental, and a wide range of service organizations.

- The Center for the Study of World Religions: the Center supports, focuses, and enhances the School's mission, with respect to research, teaching, and community
- The Women's Studies in Religion Program (WSRP): explore the fundamental role played by religious traditions in defining roles for women and men. Research on religion and gender sheds light on questions about the changing roles of women both inside religious communities and in broader public spheres

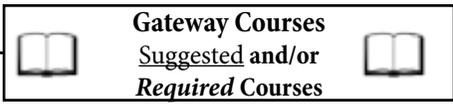
A number of different Centers and Institutes across the University for focused areas of study:

- Harvard University Center For Middle Eastern Studies
- Harvard University South Asia Initiative
- Reischauer Institute of Japanese Studies
- Fairbank Center for Chinese Studies
- Hutchins Center for African and African American Research



## Sample Faculty Research and/or Publications

- Ryūichi Abe's research is on Buddhist theory of language, Buddhism and literature, history of Japanese esoteric Buddhism, Shinto-Buddhist interaction, and Buddhism and gender.
- Diana Eck's work has a dual focus—India and America. Her work on India focuses on popular religion, especially temples and places of pilgrimage, called tirthas. Her books include *Banaras: City of Light and Darshan: Seeing the Divine Image in India* and her most recent work, *India: A Sacred Geography*, published in 2012.
- Ali S. Asani specializes in the Muslim literatures of India, Pakistan and Bangladesh; Shiism, Sufism and popular or folk forms of Muslim devotional life, and Muslim communities in the West.
- Malika Zeghal is a political scientist who studies religion through the lens of Islam and power. She is particularly interested in Islamist movements and in the institutionalization of Islam in the Muslim world, with special focus on the Middle East and North Africa in the post-colonial period and on Muslim diasporas in North America and Western Europe.
- Catherine Brekus is widely regarded as a pioneer and innovator in the writing of American religious history. Her other research interests include how religious beliefs and conflicts have shaped American understandings of public and private life, and how American culture has influenced popular understandings of religion.
- Mark D. Jordan is a pioneer in sexual ethics and a wide-ranging scholar of the history of Christianity, theology, and gender studies. He recently completed *Convulsing Bodies: Religion and Resistance in Foucault*, forthcoming from Stanford University Press. His next book project is titled *Teaching Bodies: Traditions of Moral Formation in Thomas Aquinas.*



## Gateway Courses Suggested and/or Required Courses

- **REL 40:** Incarnation and Desire - An Introduction to Christianity
- **REL 46:** Letters of Paul - Ethnicity, Sex, Ethic and the End of the World
- **MODMDEAST 100:** Introduction to the Modern Middle East
- **REL 49:** From Gospel to Allegory - Christian Narratives for Living
- **REL 97:** Sophomore Tutorial - Introduction to Methods and Theories in the Study of Religion
- **REL 1600:** Introduction to the Hindu Traditions of India
- **EAS 140:** Major Religious Traditions of East Asia
- **CB 25:** Studying Buddhism Across Time and Place
- **CB 39:** The Hebrew Bible
- **ER 18:** Classical Chinese Ethical & Political Theory
- **USW 32:** The World's Religions in Multi-cultural America - Case Studies in Religious Pluralism



## Sample Advanced Courses

- HDS 1527: Greek Exegesis of Mark
- HDS 3777: Modern Buddhism and Fiction
- HDS 2412: Theologies of the Body
- RELIGION 1556: Religion and American Pragmatism
- HDS 2620: Foucault and Religion
- HDS 3931: Yoga Sutras in Comparative Perspective



## Sample Thesis Titles

- How to Read Body Language: Constructions of Power, Women and "The Gaze" in Early Christianity
- Tevye's Children: Jewish Continuity in Changing Times
- The "Tug-of-War" over British Muslim Identity: A Comparative Analysis of British Muslim Engagement Programs Today
- Losing Face for Jesus: An Ethnography of Young Adults in the Boston Chinese Evangelical Church
- A Time for Tulpas: Technology, Language and the Study of Religion



## Sample Department Research Opportunities

Harvard Divinity School is a nonsectarian school of religious and theological studies that educates

# ROMANCE LANGUAGES & LITERATURES

Tracks:

*French Studies*  
*Portuguese & Brazilian Studies*  
*Spanish, Latin American & Latino*  
*Studies*  
*Romance Studies (study of 2 or more*  
*Romance languages)*



## WHO WE ARE

Students and scholars of French, Italian, Portuguese, Spanish, and the literatures and societies where these languages are spoken. Together, we develop exciting new ways to interpret literature and cultural practices in the Romance world. We explore the rich literary and cultural heritages of societies around the globe, as well as their continued importance today. Concentrators choose from five Special Fields – French and Francophone Studies; Italian Studies; Portuguese and Brazilian Studies; Spanish, Latin American and Latino Studies; and Romance Studies (the study of 2 or more of the above).

Small classes, faculty-taught tutorials and faculty-advised honors theses teach students to read and think critically and creatively, as well as develop individual research questions and studies. Concentration Requirements include upper-level language courses to ensure that concentrators acquire advanced oral, written, and cultural proficiency. Courses specifically for undergraduates build on this foundation, introducing major periods in the Romance literatures or offering hands-on work in translation, creative writing, and dramatic performance. Others treat more specialized topics, from literary movements and cultural figures to cross-disciplinary explorations; concentrators learn to approach questions in design, music, anthropology, sociology, gender, and politics from perspectives particular to the Romance world. Some eventually choose a joint concentration (honors) with another department or program.

Students are encouraged to study abroad during the academic year or summer to enrich their studies. Ask an RLL advisor to help you find a program tailored to your individual interests.

First-year students should take the Harvard Placement Test or the SAT II in the language(s) they have already studied to help them find the courses best suited to their preparation and interests.

## ADVISING



RLL offers attentive, one-on-one advising from freshman year through the optional senior thesis. Students develop their academic interests in consultation with faculty. Be sure to talk to them after class or in office hours. The Director of Undergraduate Studies (DUS), Associate DUS and Special Fields Advisers meet frequently with students to outline plans of study and discuss possible paths within the concentration or joint concentration. Students interested in study abroad, internship options, or RLL as a secondary field should meet with an advisor in the early planning stages.

## ALUMNI



Concentrators in RLL pursue careers in a wide variety of fields that demand strong analytical and communication skills, creativity, flexibility and experience abroad. Alumni work in business, education and research, finance, diplomacy, law, the arts, medicine and public health, many of them in Europe, Latin America, and Africa. In recent years, approximately one quarter of our concentrators have planned careers in medicine.

**Gateway Courses****Suggested and/or  
Required Courses****Freshman Seminars:**

- **FRSEMR 32M:** Food for Thought: Culinary Culture in Spain and Beyond
- **FRSEMR 35E:** What is Beauty?
- **FRSEMR 60K:** The Grail Quest of Marcel Proust
- **FRSEMR 60P:** Unhappily Ever After - Love's Unhappy Endings, à la Française
- **FRSEMR 60W:** Slaps and Embraces - How to Read in a Minor(ity) Key

**Gen Ed Courses:**

- **AESTHINT 13:** Cultural Agents
- **AESTHINT 51:** The Cosmos of the Divine Comedy
- **EMR 11:** Making Sense - Language, Logic and Communication
- **FRENCH 139b:** Ethical Dilemmas (Moral Reasoning)

**Sample Advanced  
Courses**

- **FRENCH 128:** Growing Pains - Le roman d'apprentissage, l'apprentissage du roman
- **ITALIAN 151:** Women of Modern Italy
- **PORTUGUESE 70:** Beyond Samba and Bossa Nova - The Construction of Brazilian Society through the Study of Music
- **ROMANCE STUDIES 109:** The Beautiful Game - Soccer, Politics and Popular Culture
- **SPANISH 124:** Don Quixote
- **SPANISH 127:** Performing Latinidad

**Sample Thesis Titles**

- "Paris Tout Entier": Musical Histories of Improvisation and Blackness from African-American Musicians in Paris, 1920 till Now
- Bodies as Narratives: Processes of Healing and Memory Building in the Aftermath of the Spanish Civil War
- San Juan de la Cruz: The Theology of Romancero; Rimbaud, the Sublime, and Silences
- L'Illusion Comique: Reading Corneille with Descartes

**Sample Department****Research Opportunities/Study Abroad****Independent Study and Internships**

- Dante Illustration Project Undergraduate Internship with Harvard's Houghton Library
- Independent Study in Brazil on the Zika virus, communication and public perception
- The Charlie Hebdo Archive at the Harvard Library

**Summer Programs Taught by RLL Faculty:**

- Harvard Summer Program in Paris
- Harvard Summer Program in Milan/Siena
- Harvard Summer Program in Buenos Aires

**Resources**

- Students in RLL enjoy lectures, colloquia, film screenings, theatrical performances and special events such as Brazil Week and the New England Italian Film Festival.
- Language Tables meet weekly in Annenberg and the houses, an informal setting for all levels to practice speaking and exchange ideas.

**Sample Faculty****Research and/or Publications****Janet Beizer**

- *The Harlequin Eaters: The Patchwork Imaginary of 19th-Century Paris*

**Josiah Blackmore**

- "Singing the Scene of History in Fernão Lopes"

**Lorgia García-Peña**

- *Almost Citizens: Racial Translations, National Belonging and the Global "Immigration Crisis"*

**Alice Jardine**

- *At the Risk of Thinking: An Intellectual Biography of Julia Kristeva*

**Lino Pertile**

- *Dante in Context*

**Doris Sommer**

- *The Work of Art in the World: Civic Agency and Public Engagement*

# SLAVIC LITERATURES & CULTURES

Tracks:

Slavic Languages & Literatures

114

## WHO WE ARE

The concentration in Slavic Literatures & Cultures offers you the opportunity to study the great works and cultural traditions, past and present, of Russia and the other Slavic countries, especially Ukraine, Poland, and the Czech Republic. These countries share a rich cultural life as well as a turbulent and fascinating history, from the medieval period through the days of the Russian, Habsburg, and Ottoman Empires, from the twentieth-century dramas of world war and Cold War all the way to present-day efforts to reimagine democracy, dissent, and national traditions for the twenty-first century. In the Slavic concentration, you will develop advanced proficiency in Russian or another Slavic language (such as Czech, Polish, or Ukrainian), and you will use your knowledge of the language to read everything from newspapers and primary historical texts to great works of world literature like *War and Peace*, *Crime and Punishment*, and *The Master and Margarita*. As a meeting point of East and West, the Slavic countries offer new perspectives on European and American culture, as well as a rich mix of political, literary, and religious traditions that will help you better understand your own place in the world today.

## ADVISING



General advising in the concentration is provided by the Director of Undergraduate Studies (DUS). Students working on a capstone project or senior thesis are matched with a faculty advisor.

## ALUMNI



Our alumni have gone on to a wide range of jobs – including careers in television and publishing; medical school; work for government agencies, NGOs, and research centers; political and business consulting; and graduate study in the United States and Europe. For many, a degree in Slavic Languages & Literatures means the opportunity to work, study, or do an internship in Moscow, St. Petersburg, or Prague, considerably broadening their field of career opportunities. If you go on to professional school, your preparation in a foreign language and culture will open your eyes to new fields of study and give you the chance to travel during your graduate studies and afterwards; Slavic can form the basis for a subfield in public health, law, journalism, and other professions. Our students are well-prepared for a wide variety of careers that require knowledge of languages at a professional level, understanding of other cultures, and the creativity and initiative necessary to work with people from other countries.

**Gateway Courses**  
*Suggested and/or  
Required Courses*

- **RUSSAA:** Elementary Russian I (or other Slavic language)
- **SLAVIC 145:** Russian Literature in Translation - The 19th-Century Tradition
- **SLAVIC 148:** Strange Russian Writers
- **CULTRBLF 38:** Apocalypse Then! Forging the Culture of Medieval Rus'
- **SOC-WORLD 52:** The Phoenix and the Firebird - Russia in Global Perspective
- **CB42:** Communication and Politics of Culture

**Sample Advanced Courses**

- SLAVIC 129: Russia and Representation of Race
- SLAVIC 145: Russian Literature in Translation: the 19th Century
- SLAVIC 151: Gogol
- SLAVIC 170: War and Literature - Responses to WWII in Polish Culture
- SLAVIC 174a: Miłosz and America
- SLAVIC 185: 18th-Century Russian Literature
- SLAVIC 191: Russian Orthodoxy
- SLAVIC 193: Russian and Soviet Silent Film
- SLAVIC 195: East Central European Novel after World War II
- SLAVIC 197: Dissidents from Plato to Pussy Riot

**Sample Thesis Titles**

- The Master and Margarita as a Moral Tale: Sin and Redemption in Bulgakov's Final Novel
- Tonality of Time: Sound and Transcendence in Nabokov's Fiction
- Power Adapters: Dimitry Krymov and Kama Ginkas on the Moscow Stage
- Dogs, Divas, and the Men Who Make Them: Decoding Operatic Adaptations of Bulgakov's *Sobach'ye serdtse*
- Why do 'I Want a Man Like Putin?' Unraveling the Puzzle of Putin's Popularity

**Sample Department Research Opportunities**

- Davis Center for Russian and Eurasian Studies: the intellectual home of Harvard scholars and students with an interest in this critical region of the world. Our

**Continued...**

- mission is fourfold:
1. *To generate and disseminate original research and scholarship on Russian and Eurasian studies.*
  2. *To promote the training of graduate and undergraduate students interested in the region.*
  3. *To create and sustain a community of scholars at all levels of academic achievement.*
  4. *To ensure that society at large benefits from the exchange of information and ideas at the Davis Center.*
- Harvard Ukrainian Research Institute: serves as a focal point for graduate and undergraduate students, fellows, and associates pursuing research in Ukrainian language, literature, and history as well as in anthropology, archaeology, art history, economics, political science, sociology, theology, and other disciplines.
  - Summer Programs: Harvard Summer Program in Prague, Czech Republic, Harvard Summer Program in Tbilisi, Georgia.

**Sample Faculty Research and/or Publications**

- Daria Khitrova:
- Research interests: Russian poetry of the Golden and Silver Ages; Russian Ballet; Film History; Formalist theory of arts and literature.
- Justin McCabe Weir:
- Research: Nineteenth- and twentieth-century Russian prose, film, and literary theory.
  - Publication: *"The Author as Hero: Self and Tradition in Bulgakov, Pasternak, and Nabokov."*
- Julie A. Buckler:
- Research: Russian literature, 19th-century and pre-revolutionary prose, 18th-century literature, West European and American literature, cultural studies and semiotics, performing arts (opera, ballet, drama, music) and performance studies, urban studies, imperialism, monuments and commemorations, the presence of the past, the art of interpretation, literary canon and popular culture.
  - Publication: *"Victorian Literature and Russian Culture: Translation, Reception, Influence, Affinity."*

# SOCIAL STUDIES

Tracks: *Social Studies*

## WHO WE ARE

Social Studies is a great concentration for students who are interested in studying a social science topic from an interdisciplinary perspective. We offer small tutorials, one-on-one advising, and a vibrant and supportive intellectual community. We aim to give our students the knowledge, skills, and experiences they need to do high level work in the social sciences, including conducting primary research in preparation for a senior thesis. Our curriculum is comprised of a set of foundational courses in social theory, economics, statistics, and the philosophy and methods of the social sciences, followed by junior tutorials that immerse students in social science topics and teach research methods. Social Studies students develop individualized focus fields in close consultation with their academic advisors, drawing courses from across the college and, frequently, from the graduate schools. Examples of focus fields are “Education in American Society;” “Development in Latin America;” and “Liberty and Freedom in Modern Social Thought.” Social Studies students develop excellent analytical, research, and writing skills, and they devote their senior year to writing a thesis, which serves both as a capstone to their undergraduate education and a chance to develop and complete a major independent project.

## ADVISING



Dr. Bonnie Talbert, our Assistant Director of Studies for Freshmen and Sophomores, and Kate Anable, our Undergraduate Program Administrator, are our primary pre-concentration advisors. Once students declare Social Studies, they are assigned to an individual concentration advisor.

## ALUMNI



Social Studies alumni pursue a wide range of careers, and they report that their Social Studies education prepared them well for life after Harvard. Immediately after graduation, some students have worked in consulting or the non-profit sector in the US or abroad, studied abroad on fellowships, or joined public service programs like Teach for America. Many Social Studies students ultimately earn degrees in law, business, public policy, and academia (often in combination with each other), and a number every year go into medicine.

 **Gateway Courses**   
**Suggested and/or**  
**Required Courses**

First year

- Students considering Social Studies may want to take Economics 10 or any upper level course for which Economics 10 is recommended preparation.
- Students may want to take an ethical reasoning, moral reasoning, or philosophy course to determine whether they enjoy social theory.
- Students should take social science courses in areas that interest them. For example, a student who is interested in development in East Asia should take a course on that region to learn more about the history, economics, or politics of at least one of the countries in that area of the world. A student who is interested in poverty in the United States should take a course on a related topic, such as a sociology course on urban poverty or a course on social problems in the American economy.

Second year, first term

- Potential concentrators must enroll in ***Social Studies 10a***, which is a prerequisite for joining the concentration.
- Students should take courses in economics and statistics, especially if they are planning to study abroad in their junior year.

Students should continue to take social science courses in areas that interest them.

 **Sample Advanced Courses** 

- SOC-STD 98NB: Inequality and Social Mobility in America
- SOC-STD 98OA: Human Rights in Africa
- SOC-STD 98OU: Environmental Theory
- SOC-STD 98PL: Empire and Colonialism in the Modern World
- SOC-STD 68CT: The Chinese Immigrant Experience in America
- SOC-STD 98OW: Crime and Governance in Latin America
- SOC-STD 68EC: Education and Community in America

 **Sample Thesis Titles** 

- Trading in Race: Gentrification, Small Business, and the Prospects for the Black Inner City
- Palms for Peace? Colombia's commodity boom and peace process
- Capability Without Indignity: Social Equality and Human Capabilities
- It's Part of Being a Teacher: Learning Discipline and Identity in a Public Middle School
- Visions and Models in South Africa: Balance

 **Continued...** 

- ing Energy Development with Global Climate Change
- The Blonde, Blue-Eyed Slave: Alexina Morrison and the Legal and Scientific Construction of Race in Louisiana, 1857-1862

 **Sample Department Research Opportunities** 

- The Center for American Political Studies (CAPS) fosters discussion, research, public outreach, and pedagogy about all aspects of U.S. politics.
- The David Rockefeller Center for Latin American Studies works to increase knowledge of the cultures, economics, histories, environment and contemporary affairs of Latin America; to foster cooperation and understanding among the peoples of the Americas; and to contribute to democracy, social progress and sustainable development throughout the hemisphere.

 **Sample Faculty Research and/or Publications** 

- Terry Aladjem:
- Research: American popular culture, memory and identity, liberalism, law and society, feminist theory, and critical theory.
  - Publication: *The Culture of Vengeance and the Fate of American Justice*
- Anya Bassett:
- Research: children, families, and young adults in American society and politics; the relationship between social class, child rearing, and life outcomes; the intellectual and emotional development of college students.
  - Publication: *The Moderation Dilemma: Legislative Coalitions and the Politics of Family and Medical Leave*
- Eric Beerbohm:
- Research: democratic theory, theories of distributive justice, and the philosophy of social science. Currently working on the ethical problems associated with democratic lawmaking, including legislative compromise, obstructionism, and political leadership.
  - Publication: *In Our Name: The Ethics of Democracy*
- Daniel Ziblatt:
- Research: democratization, state-building, comparative politics, historical political economy, and European political development.
  - Publication: *Structuring the State: The Formation of Italy and Germany and the Puzzle of Federalism*

# SOCIOLOGY

Tracks: Sociology

## WHO WE ARE

Sociology is the study of society, of the social frameworks within which we live our lives. It is a study of social life at every level, from two-person relationships to the rise and fall of nations and civilizations. More than any other discipline it is a meeting place of the social sciences, combining its own ideas and methods with insights from history, anthropology, economics, political science, and psychology in an extended examination of the ways societies work—or fail to work. Thus Sociology is unusual in its concern with the interrelation of social forces studied in isolation elsewhere. The breadth of subjects one can study in sociology is quite wide but the focus on social relations and the effect of society on the individual is the common denominator.

The Department of Sociology at Harvard has a diverse and distinguished faculty. Our faculty includes the world's foremost experts in race, ethnicity and immigration, inequality, economic sociology and organizations, urban poverty and the city, gender and family, crime and punishment, social movements and social change, politics, work, culture, social networks, comparative and historical sociology, and sociological theory. Students may take courses in a variety of areas or they may put together a focused program of study reflecting their own particular interests.

We prepare students to develop sociological questions and to design and conduct systematic and rigorous research which they pursue through course projects and senior theses. There are multiple opportunities for students to gain valuable research experience including through RA work on faculty projects.

Course emphases range widely from the theoretical to the applied and incorporate an array of approaches, including field-based sociology, qualitative methods, quantitative and computer-based analysis, historical and comparative studies, and theoretical explorations. Our students receive instruction in classical and contemporary social theory along with cutting-edge qualitative and quantitative methods. Students also learn how to apply sociological analysis to real-world issues from third world development to corporate capitalism, and from crime in the streets to crime on Capitol Hill.

## ADVISING



Sociology is a relatively small department with a generous student-faculty ratio and a strong tradition of commitment to undergraduates. The concentration takes pride in its advising system which allows for personal attention to students. Sociology concentrators are advised by our Associate Director of Undergraduate Studies, Rachel Meyer ([meyer2@fas.harvard.edu](mailto:meyer2@fas.harvard.edu)). We strongly encourage students to take the opportunity to meet with the ADUS and other faculty from our Committee on Undergraduate Degrees. Graduate student Concentration Advisors also advise concentrators and pre-concentrators and are assigned to the Houses. For questions about concentration requirements and policy matters you can also contact Laura Thomas ([lthomas@wjh.harvard.edu](mailto:lthomas@wjh.harvard.edu)).

To learn more about Sociology concentration advising, as well as who your House Concentration Advisor is, please visit: [sociology.fas.harvard.edu/pages/advising](http://sociology.fas.harvard.edu/pages/advising)

## ALUMNI



The breadth of interests touched on by the discipline of sociology is matched by the career choices of our undergraduates who are working in a variety of different areas, including law, medicine, non-profits, investment banking, management consulting, government, journalism, teaching, and higher education. Sociology's broad perspective is particularly valuable in our increasingly global, interdependent world. For more info, please see: <http://sociology.fas.harvard.edu/pages/alumni-profiles>.

**Gateway Courses**  
**Suggested and/or**  
**Required Courses**

1. You can take *one of our courses that are designed to give you an introduction* to the discipline including:
  - **SOCIOL 23:** Introduction to Political Sociology
  - **SOCIOL 25:** Introduction to Sociology of Organizations
  - **SOCIOL 24:** Introduction to Social Inequality
  - **SOCIOL 27:** Introduction to Social Movements (USW)
2. You can take a Gen Ed course that is also a sociology course including:
  - **USW 31:** American Society and Public Policy
  - **USW 24:** Reinventing Boston - The Changing American City
  - **SOW 34:** Caribbean Societies
  - **SOCIOL 27:** Intro to Social Movements (fulfills USW)
3. You can take an elective from one of our 100-level advanced courses from the list below
4. If you have confidence that you are going to concentrate in sociology you can consider taking one of the following core courses that are required for concentrators

**SOCIOL 97:** Social Theory (offered fall and spring)  
**SOCIOL 128:** Models of Social Science Research (offered fall only)

**Sample Advanced Courses**

- SOCIOL 177: Poverty in America
- SOCIOL 146: Death by Design - Inequality
- SOCIOL 137: Money, Work, and Social Life
- SOCIOL 135: Education and Culture
- SOCIOL 115: Media and Popular Culture

**Sample Thesis Titles**

- Between the Ratchet and the Righteous: The Performance of Race Online and the Emergence of Black Twitter
- Sissies or Soldiers? Sexual Stigma and Collective Identity in the Putos Peronistas Movement
- Expanding the Alphabet of HIV/AIDS Interventions: Understanding Maasai Culture and the Implications for Awareness and Prevention Strategies
- Family Life After Incarceration in the Boston Reentry Study

**Continued...**

- From Policy to Practice: An Analysis of the factors affecting ground-level execution of the K-12 Basic Education Program in the Philippines

**Sample Department Research Opportunities**

We prepare students to develop sociological questions and to design and conduct systematic and rigorous research which they pursue through course projects and senior theses. Students have opportunities to engage in fieldwork throughout the curriculum. Required courses emphasize research methodologies and data analysis, including the junior tutorial where students engage in an original research project. There are multiple opportunities for students to gain valuable research experience including RA work on faculty projects (Sociology 92R). This focus on research and fieldwork bolsters both a 'hands on' approach to learning while also exposing students to the production of sociological knowledge. For more on research opportunities, see: <http://sociology.fas.harvard.edu/faculty-research>

**Sample Faculty Research and/or Publications**

Sociology is a broad-based discipline. Our department is particularly strong in the following areas, which are our research clusters: Comparative Sociology and Social Change; Crime and Punishment; Culture, Economic Sociology and Organizations; Gender and Family; Health and Population; Inequality; Political and Historical Sociology; Race, Ethnicity and Immigration, Urban Poverty and the City.

Books Published Recently by our Faculty Include:

- Matthew Desmond:
- *Evicted*, (Crown Publishers, 2016)
- Paul Chang:
- *Protest Dialectics*, (Stanford University Press, 2015)
- Orlando Patterson with Ethan Fosse:
- *The Cultural Matrix*, (Harvard University Press, 2015)
- Jocelyn Viterna:
- *Women in War*, (Oxford University Press, 2013)
- Robert J. Sampson:
- *Great American City*, (The University of Chicago Press, 2012)

# SOUTH ASIAN STUDIES

Tracks: *South Asian Languages, Literatures,  
& Cultures*  
*South Asian Studies*

## WHO WE ARE

A concentration in South Asian Studies enables students to develop a critical understanding of the diverse cultures, histories, languages, and literatures of South Asia, which includes modern India, Pakistan, Tibet, Nepal, Bangladesh, and Sri Lanka. South Asia is home to more than a billion people – its influence has extended historically from Central, East, and Southeast Asia to Europe and North America, each of which today have vibrant South Asian diasporas. The study of South Asia is an important area of academic inquiry, especially in recent decades as the region emerges as a global cultural, economic, and political power.

## ADVISING



Students are assigned a faculty advisor based on their area of study. Students continue with the same advisor throughout their three years, unless there is a reason for making a change. Students meet with their advisor at least once a term and at other times as needed.

## ALUMNI



Recent concentrators in the Department of South Asian Studies have gone on to PhD programs in the Arts and Humanities, MD/PhD programs, Law Schools, careers in Public Service, and positions at McKinsey and Company and Bain Capital.

**Sample Department Research Opportunities**

- South Asia Institute: SAI is a university-wide research institute at Harvard that engages faculty members, students, and in-region institutions through interdisciplinary programs to disseminate knowledge, build capacity, inform policy, and engage in advocacy on issues that are shaping South Asia today.
- Harvard University Asia Center: a university-wide inter-faculty initiative with an underlying mission to project Harvard in Asia and Asia at Harvard. The Asia Center engages in a variety of scholarly and practical activities both at Harvard and in Asia to help strengthen the significance and understanding of East, Southeast, and South Asia including research and teaching, public seminars and conferences, focused workshops, publication of journals and monographs, internships, travel fellowships, film series, art exhibits, and more.

**Sample Faculty Research and/or Publications**

- Sunil Amrith:
- Research: trans-regional movement of people, ideas, and institutions, and has focused most recently on the Bay of Bengal as a region connecting South and Southeast Asia. Amrith's areas of particular interest include the history of migration, environmental history, and the history of public health.
  - Publication: "*Crossing the Bay of Bengal: The Furies of Nature and the Fortunes of Migrants*"
- Ali Asani:
- Research: Muslim literatures of India, Pakistan and Bangladesh Shiism, Sufism and popular or folk forms of Muslim devotional life, and Muslim communities in the West.
  - Publication: *Celebrating Muhammad: Images of the Prophet in Muslim Devotional Poetry* (co-author)
- Richard K. Wolf:
- Publication: *The Voice in the Drum: Music, Language, and Emotion in Islamicate South Asia*
- Diana Eck:
- Publication: "*India: A Sacred Geography.*"

**Gateway Courses Suggested and/or Required Courses**

- CULTBLF 28: Hindu Worlds of Art and Culture
- CULTBLF 60: Religion in India - Texts and Traditions in a Complex Society
- ER 19: The Good Life in Classical India
- FRSEM 32X: Topics in Indo-Tibetan Buddhism
- HAA 18S: Arts of South and Southeast Asia
- SAS 130: Economic History of India
- SAS 131: South Asia: A Global History

**Sample Advanced Courses**

- SAS 225: South Asia as Understood Through Its Regions
- SAS 193: Class and the City in Indian Cinema
- SAS 179: South Asia - Connected Histories, Interdisciplinary Frames
- SAS 178: Literature as History in South Asia
- SAS 196: Capitalism and Cosmology in Modern India

**Sample Thesis Titles**

- Reflections on Reality: The Buddhist Philosopher Srighupta and His Place in Indian Intellectual History
- Demystifying Indian Opposition to the US-India Civil Nuclear Agreement
- The Violence of Normal Times
- The Map-Maker's Colors: Mukulabhatta's Taxonomy of Figurative Meaning and its Promise for Literary and Everyday Life
- Royalty in Transition
- Conflict, Coexistence and Love: Bollywood Cinema and Hindu-Muslim Relations 1995-2015

Tracks:      *Statistics*  
                  *Bioinformatics & Computational*  
                  *Biology*  
                  *Quantitative Finance*  
                  *Data Science*

# STATISTICS

## WHO WE ARE

Statistics is a relatively young discipline, focusing on principled methods for learning from data and making sense of randomness and uncertainty. A basic goal of the concentration in Statistics is to help students acquire the conceptual, computational, and mathematical tools for quantifying uncertainty and making sense of complex data arising from many applications. Students may elect one of four paths toward a concentration in statistics: General, Data Science, Quantitative Finance, and Bioinformatics and Computational Biology (BCB).

The general track is the most flexible track, providing a foundation in principles and techniques for statistical theory, methods, and applications. This foundation can be applied to a myriad of fields.

The data science track explores the interface of statistics and computer science. Courses involve a mixture of these fields, with applications to areas such as prediction, recommendation systems, and analysis of massive data sets.

The finance track gives strong preparation for many careers in finance and actuarial work. Topics include models and methods relevant for prediction, pricing, and risk assessment of complex financial/insurance instruments.

The BCB track mixes together biology, statistics, and computation, giving models and tools for studying biological data such as gene and protein sequences. Topics include models and methods for gene and protein motifs search, phylogenetic reconstruction, and gene expression analysis.

## ADVISING



Students are welcome to consult with any faculty in the department. Additional concentration advising is provided by the Co-Directors of Undergraduate Studies (Joe Blitzstein, Michael Parzen), the Assistant DUS (Kevin Rader), and the Student Programs Administrator (Alice Moses). All of the persons above sign study cards.

## ALUMNI



Recent alumni have obtained a wide variety of jobs (especially in finance, consulting, and tech companies) and gone on to a wide variety of graduate programs (especially in statistics, biostatistics, and medicine). See: [stat.harvard.edu/alumni/AB.html](http://stat.harvard.edu/alumni/AB.html) for more information.

 **Continued...** 

- Objective Bayes: Neither Objective Nor Bayesian
- From Tent to Home: Measuring the Causal Effect of Relocation Programs in Port-au-Prince, Haiti

 **Sample Department Research Opportunities** 

- Bioinformatics
- Quantitative Finance
- Sports Analytics
- Social Network Analysis
- Bayesian Statistics
- Astrophysics
- Causal Inference

 **Sample Faculty Research and/or Publications** 

- See [statistics.fas.harvard.edu/pages/faculty-research](https://statistics.fas.harvard.edu/pages/faculty-research) for more information.

 **Gateway Courses**   
**Suggested and/or Required Courses**

- **Statistics 100:** Introduction to Quantitative Methods for the Social Sciences and Humanities (fall)
  - **Statistics 101:** Introduction to Quantitative Methods for Psychology and the Behavioral Sciences (fall)
  - **Statistics 102:** Introduction to Statistics for Life Sciences (spring)
  - **Statistics 104:** Introduction to Quantitative Methods for Economics (fall and spring)
- Only one of Stat 100, 101, 102 or 104 can be taken for credit
- **Statistics 110:** Introduction to Probability (fall)
  - **Statistics 111:** Introduction to Theoretical Statistics (spring)
  - **Statistics 139:** Statistical Sleuthing Through Linear Models (fall and spring)
- It is highly recommended to take Stat 110,111 and 139 sequentially and in numerical order

 **Sample Advanced Courses** 

- STAT 115: Introduction to Computational Biology and Bioinformatics
- STAT 120: Bayesian Statistics
- STAT 121a: Data Science I
- STAT 121b: Data Science II
- STAT 123 : Applied Quantitative Finance
- STAT 131: Time Series & Prediction
- STAT 170: Quantitative Analysis of Capital Markets
- STAT 171: Stochastic Processes
- STAT 186: Statistical Methods for Evaluating Causal Effects

 **Sample Thesis Titles** 

- A Future of Abundant Sparsity: Novel Use and Analysis of Sparse Coding in Machine Learning Applications
- Who Pays a Motherhood Wage Penalty? The Role of Job Change and Employment Gaps
- Predicting General Education Course Enrollments at Harvard College
- Quantifying Uncertainty in Oil and Gas Production Forecasts
- How to Order Sushi: A Nonparametric Approach to Modeling Rank Data
- Cross-Talk Analysis in Breast Cancer Tissues
- Volatility Prediction for Risk Parity Portfolios
- Yelping for Help and Helping Yelp: Recommendation Systems Meet Topic Modeling

## WHO WE ARE

Theater, Dance & Media is Harvard's newest and 49th concentration! This interdisciplinary undergraduate program, which integrates the study of theater, dance and media with their practice, responds to both the Report of the Task Force on the Arts' demand "to make the arts an integral part of the cognitive life of the university," as well as to a consistent appeal from students over many decades to have a theater and dance major at Harvard. Drawing on the many resources dedicated to the performing arts at the university, including the American Repertory Theater, the Theater Collection of Houghton Library, the Office for the Arts, the Dance Center, the Music Department, and the Department of Visual and Environmental Studies (VES), this new concentration offers students the opportunity to investigate the myriad ways that theater, dance, and media have been an ever-present part of human life.

Theater and dance are two of the oldest human art forms and are central to cultures around the world. The invention of theatrical genres such as tragedy and comedy, the use of masks and different acting and movement techniques, and the evolution of theater architecture are major cultural achievements; knowing them is crucial for understanding our past. These achievements continue to shape our own arts culture, and contemporary artists in theater and dance have begun to reimagine their art forms in a new media environment. The concentration in Theater, Dance & Media harnesses these past and present energies to create an integrated course of study for Harvard undergraduates.

In this concentration, experienced professionals from the American Repertory Theater and the Dance Center, as well as visiting artists from NYC and elsewhere, teach practice-based courses that introduce students to the rigor and discipline required to master the interlocking techniques out of which theater, dance, and media practices are composed. Also, scholars in various Harvard humanities departments (including, but not limited to, African & African American Studies, Comparative Literature, English, Folklore & Mythology, History of Art & Architecture, Music, Visual & Environmental Studies) teach courses on the history, theory, and criticism of the performing

arts. Concentrators, therefore, engage in a cognitive approach to art making in order to understand both the theory and practice of the performed arts, rather than pursuing a conservatory-style of training. By taking sophomore and junior tutorials that integrate theory and practice along with lecture and studio courses that focus on particular aspects of these theatrical forms, students actively engage in all aspects of theater, dance, and media production, working with scholars and professionals in all areas.

## ADVISING



The Director of Undergraduate Studies (DUS) advises all students when they enter the concentration, eventually assigning to them additional faculty and professional advisors, based on the students' particular interests and their work in or on specific productions. Together with the DUS, these advisors will support students in developing a coherent course of study and a solid body of artistic work that is suited to each student's goals and interests.

### QUESTIONS?

Deborah Foster\*, Director of Undergraduate Studies: [dfoster@fas.harvard.edu](mailto:dfoster@fas.harvard.edu), 617-496-7616 |  
Emily Warshaw, Department Administrator: [ewarshaw@fas.harvard.edu](mailto:ewarshaw@fas.harvard.edu), 617-496-5914 |

\* Study abroad contact

**Gateway Courses**  
**Suggested and/or**  
**Required Courses**



Students who wish to explore Theater, Dance & Media may want to try one of several TDM practice-based courses listed in the course catalog, or one of the scholarly courses cross-listed under Theater, Dance & Media. [tdm.fas.harvard.edu](http://tdm.fas.harvard.edu)

For example:

- [TDM 110](#): Beginning Acting
- [TDM 114](#): Practical Aesthetics
- [TDM 120](#): What's so Funny? Introduction to Improvisational Comedy
- [TDM 141](#): Movement Lab

Freshman Seminars are also an excellent way of being introduced to the field:

- [FS 30r](#): Performing French Theater Across Time and Media
- [FS 35n](#): The Art and Craft of Acting
- [FS 34v](#): Broadway Musicals - History and Performance
- [FS 35w](#): Sex, Gender, Shakespeare
- [FS32v](#): The Art of Storytelling



**Sample Advanced Courses**



- TDM 112R: Advanced Acting: Contemporary Texts
- TDM 116: Acting Workshop: Comedy
- TDM CAMR: Advanced Playwriting Workshop
- TDM 131: Directing Lab
- TDM 151: Scenography Studio



**Upcoming Thesis Projects**



- Write and/or direct a play, as a current senior is planning
- Direct a published play and write about your treatment of it, as a current senior is doing



**Sample Department Collaborators and Resources**



- American Repertory Theater (A.R.T.): as a world-renowned professional theater, the A.R.T. plays a central role in the cognitive life of the University. Through dynamic collaborations with the Theater, Dance & Media concentration, professors, student organizations, and cultural institutions around Harvard, the A.R.T. welcomes students and teachers to observe and participate in the creation of its work.
- Harvard Dance Center: one of the primary performance venues for dance at Harvard.



**Continued...**



The Center houses the Dance Office and features two studios and performance amenities for students and visiting artists; offers numerous Master Classes taught by dance luminaries; and hosts an Emerging Choreographers Program.

- Harvard Theater Collection: the Harvard Theatre Collection is the oldest collection of its kind in America and one of the largest in the world. A department of Houghton Library, it specializes in documentary material on the history of the performing arts.
- Office for the Arts: supports student engagement in the arts and integrates the arts into University life. Through its programs and services, the OFA teaches and mentors, fosters student art making, connects students to accomplished artists, commissions new work, and partners with local, national, and international constituencies.
- Arts @ 29 Garden: Envisioned as both a physical space and a process of collaboration, the program aims to serve as a laboratory for bringing creative ideas in the visual, verbal, and performative arts to fruition through a process of interdisciplinary interaction, discussion, performance, and implementation.



**Opportunities to Engage with Visiting Faculty-Artists**



Daniel Kramer:

- The newly appointed artistic director of the English National Opera will direct August Strindberg's *A Dream Play* at Farkas Hall in the fall of 2016; he will also teach *Devising Physical and Image Performance*.

Katie Pearl:

- One half of the award-winning team PearlDamour will teach *The Artist-Citizen* this fall.

David Chambers:

- A long time faculty member of the Yale School of Drama returns to TDM to teach *Making the Avant-Garde*.

James Stanley:

- Co-artistic director of the NTUSA will teach two courses, *Performing the Archives* and a *Devised Theater Workshop*.

Joy Davis:

- A dance lecturer currently teaching at the Boston Conservatory will join Harvard in the fall to teach a course in *Countertechnique*, a technique developed by esteemed Dutch dancer/choreographer Anouk van Dijk.

## WHO WE ARE

Visual & Environmental Studies (VES) cultivates skills in both the practice and the critical study of the visual arts. Its components include photography, filmmaking, animation, video art, painting, drawing, printmaking and sculpture, as well as film and visual studies, critical theory, and the study of the built environment. VES' small seminars, and practice-based art making and film/video production courses encourage creative experimentation within coursework and projects. The modes of teaching combine the intensity of conservatory programs with the broad intellectual aims of a liberal arts college

Within VES, there are four different areas of study: studio arts, film/video, film and visual studies, and environmental studies, and each of them has slightly different requirements. In filmmaking and studio arts, concentrators work toward comprehensive accomplishment in their chosen area while simultaneously exploring a variety of other practices. In the environmental studies area, the built environment is explored as concentrators take courses that designate multi-disciplinary analysis of 2- and 3- dimensional spatial contexts altered or created by people. In film and visual studies, concentrators investigate ways of understanding the theory and the history of the moving image.

There is a brief application process to concentrate in VES: Sophomores must have taken at least one VES course, or be in the process of taking one when they submit their application in October, and they must have a current GPA of 3.0 or above. For students wishing to focus in the studio arts or filmmaking areas, an introductory studio or production course is required in advance of, or at the time of the application.

## ADVISING



New concentrators are assigned a VES faculty member when they declare, though the Director of Undergraduate Studies (Ruth Lingford) and the Manager of Academic Programs (Paula Soares) provide basic advising about requirements.

## ALUMNI



VES alums put their visual skills to work as artists, filmmakers, gallerists, educators, and film and television industry executives. Some pursue further graduate studies in business, law and medicine. Most go on to work in explicitly visual fields. VES graduates have won Academy Awards as well as top prizes at the Locarno, Sundance and Tribeca Film Festivals, while others have had their work exhibited in some of the world's most prestigious venues.

## QUESTIONS?

Ruth Lingford\*, Director of Undergraduate Studies: [lingford@fas.harvard.edu](mailto:lingford@fas.harvard.edu) |

Paula Soares\*, Manager of Academic Programs, Advisor, Secondary Field Contact: [soares@fas.harvard.edu](mailto:soares@fas.harvard.edu), 617-496-4469 |

\* Study abroad contact

**Gateway Courses**  
Suggested and/or  
Required Courses

- [VES 12](#): Drawing 1 - Anyone Can Learn to draw
- [VES 15AR](#): Silkscreen
- [VES 24](#): Painting, Smoking, Eating
- [VES 34](#): Sculptural Dimensions
- [VES 37](#): Lay of the Land
- [VES 40A](#): Introduction to Still Photography
- [VES 41A](#): Introduction to Still Photography
- [VES 50F](#): Working in Film
- [VES 52](#): Introduction to Non Fiction Video-making
- [VES 53AR](#): Fundamentals of Animation
- [VES 60x](#): Fiction in the Flesh
- [VES 67R](#): Persuasive Projections - Film, Video and Moving-Image Installation
- [VES 70](#): The Art of Film
- [VES 74](#): Surveillance and Cinema
- [VES 100](#): Critical Studies - The Artist

Notes about first courses:  
Because VES' studio arts and filmmaking courses are limited to 10 or 12 spots, students should identify a few different courses of this type to shop at the start of the term in case they don't get a spot in their first choice.

- First year:
- Students interested in the studio arts area should take an introductory studio art course in advance of their application to concentrate. These courses are generally numbered VES 10-39, and VES 80.
  - Students who want to focus on film, video or animation should take a beginning course in one of these areas (including photography) in advance of their application. These courses are generally numbered VES 40-69.
  - Students interested in the area of film and visual studies should take an introductory class in the history and theory of cinema. Two appropriate introductory courses are VES 74: Surveillance and Cinema in the fall, and VES 70: The Art of Film in the spring. In addition to being required for film and visual studies track students, VES 70 meets the General Education requirement in Aesthetic and Interpretive Understanding and can be double-counted as such.

- Second year:
- [VES 50](#), Introduction to Nonfiction Filmmaking: This year- long introductory film course is usually taken by students in their sophomore year. Typically, any double-digit course is appropriate as a gateway course for first and second year students.

**Sample Advanced Courses**

- Typically, all VES triple-digit, i.e., 100-level courses are intermediate to advanced, though first and second year students often enroll in these courses if the pre-requisites are met. Undergraduates are also welcome to take VES 200-level courses along with the film and visual studies graduate students.

**Sample Thesis Titles**

- "Aztlán" (documentary film)
- "Calibrated" (photography and mixed media installation)
- "From Spatial Tactics to Strategies: The Visual Impact of American Express Credit Card Advertising on Travel from the early 1950s to the mid 1980s" ( written thesis, Environmental Studies track)
- "Hold Me Ca Caw Ca Caw" (animated film)

**Sample Department Research Opportunities**

VES is housed in the Carpenter Center for the Visual Arts, the only building in North America designed by the Swiss architect Le Corbusier, making it a popular destination for visitors from all over the world. VES concentrators are invited to participate in the dynamic programming and activities of the CCVA throughout the year, giving them the opportunity to learn about the inner workings of artistic, cinematic and cultural exhibitions in various types of media.

**Sample Faculty Research and/or Publications**

- Giuliana Bruno:
- *"Surface: Matters of Aesthetics, Materiality, and Media."* (publication)
- Robb Moss:
- *Containment* (documentary film)
- John Stilgoe:
- *"Old Fields: Photography, Glamour, and Fantasy Landscape."* (publication)

# WOMEN, GENDER & SEXUALITY STUDIES

Tracks:

Women, Gender & Sexuality Studies  
LGBT Studies focus



## WHO WE ARE

The study of gender and sexuality has long constituted a vibrant and engaging arena for interdisciplinary work and intellectual inquiry. At the heart of this field is the assertion that gender and sexuality are fundamental categories of social organization and power that are inseparable from race, ethnicity, class, nationality, and other categories of difference. The concentration in Women, Gender, & Sexuality Studies (WGS) brings together a wide range of academic fields in the humanities, social sciences, and sciences (including history, literature, visual studies, anthropology, sociology, political science, psychology, and biology, to name just a few). As an interdisciplinary field of study, WGS pays close attention to how social norms have changed over time and how they vary across cultures. The concentration also actively investigates the ways in which ideas about gender and sexuality have shaped public policy, civil rights, health care, religion, education and the law, as well as the depiction of women and men in art, literature, and the popular media. WGS courses are characterized by a strong commitment to critical thinking, as well as a spirit of open and sustained intellectual inquiry.

## ADVISING



Concentration advising is provided by the Director of Undergraduate Studies (DUS; Caroline Light) and the Assistant Director of Undergraduate Studies (ADUS; Linda Schlossberg). Sophomores are welcome to work with both of these advisors. Juniors typically work with the DUS; seniors, with the ADUS.

## ALUMNI



WGS alumnae/i have pursued a variety of career paths, including medicine, teaching, art, law, publishing, public service, and academia, but what unites them is a demand for critical thinking and problem-solving skills. For a closer look at what alumnae/i have done with their WGS degrees, visit our alumnae/i page, linked from [wgs.fas.harvard.edu](https://wgs.fas.harvard.edu)

**Gateway Courses**  
**Suggested and/or Required Courses**

- SWGS 1125: Gender, Poverty, and Health - Social Inequalities and Social Policy
- SWGS 1127: Beyond the Sound Bite - Women, Gender, and Sexuality in The Daily News
- **SWGS 1200**: The History of Feminism - Narratives of Gender, Race, and Rights
- SWGS 1225: Leaning in, Hooking Up - Visions of Feminism and Femininity in the 21st Century (*New Course*)
- SWGS 1237: LGBT Literature
- SWGS 1247: I Will Survive - Women's Political Resistance Through Popular Song
- USW 26: Sex and the Citizen - Race, Gender, and Belonging in the U.S.
- ER 42: Sexual Ethics as Ethical Reasoning
- SWGS 1229: Asian American Theater and Performance

**Sample Advanced Courses**

- SWGS 98r: Junior Tutorial
- SWGS 1210: Theories of Race and Sexuality
- SWGS 1246: Staging Protest
- SWGS 1424: American Fetish - Consumer Culture Encounters the Other
- SWGS 1457: Queering Affect - What's Good About Feeling Bad

**Sample Thesis Titles**

- Note: WGS does not require a Senior Thesis**
- And I am Telling You, You Can't Stop the Beat: Locating Narratives of Racial Cross-over in Musical Theater
  - "Are you Ready to be Strong?": Images of Female Empowerment in 1990s Popular Culture
  - Beyond Victim-Blaming: Strategies of Rape Response through Narrative
  - Biomedicalizing the Labor of Love: Narratives of Maternal Disability and Reproduction
  - A Genealogy of Gay Male Representation from the Lavender Scare to Lavender Containment
  - "The Potential of Universality": Discovering Gender Fluidity Through Performance
  - Sexual Apartheid: Marginalized Identity(s) in South Africa's HIV/AIDS Interventions

**Sample Department Research Opportunities**

- Harvard College Women's Center: focuses on providing comfortable meeting space, resources, programs and services to all students, with a specific mission to address the interests, needs and concerns of undergraduate women on campus.
- Harvard College Office of BGLTQ Student Life: provides support, resources, and leadership development for bisexual, gay, lesbian, transgender, queer, and questioning students. Through collaboration with students and student organizations, the Office creates opportunities for fellowship, thoughtful dialogue, and the pursuit of knowledge. We seek to foster a safer, more diverse, and inclusive campus by educating and engaging the Harvard community about the multiplicity of sexual and gender identities.
- Arthur and Elizabeth Schlesinger Library: library on the History of Women in America is the leading research library in the field. The library holds more than 35,000 volumes, 800 collections of personal and organizational papers, 50,000 photographs, oral histories, videotapes, and other historical materials. The library collects information on women's rights, suffrage, social welfare and reform, pioneers in the professions, and the family.

**Sample Faculty Research and/or Publications**

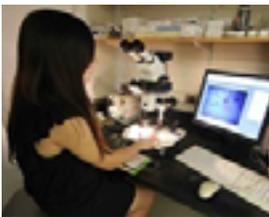
- Robin Bernstein:
- *Racial Innocence: Performing American Childhood from Slavery to Civil Rights* (New York University Press, 2011)
- Michael Bronski:
- *A Queer History of the United States* (Beacon Press, 2012)
- Mark Jordan:
- *Convulsing Bodies: Religion and Resistance in Foucault* (Stanford University Press, 2015)
- Caroline Light:
- *Stand Your Ground: America's Love Affair with Deadly Self-Defense* (Beacon Press, 2017)
- Afsaneh Najmabadi:
- *Professing Selves: Transsexuality and Same-Sex Desire in Contemporary Iran* (Duke University Press, 2014)
- Sarah Richardson:
- *Sex Itself: The Search for Male and Female in the Human Genome* (University of Chicago Press, 2013)

# Secondary Fields

In addition to offering concentrations, many Harvard departments also offer students the option of pursuing a less intensive structured course of study: secondary fields. Secondaries may be of especial interest to students whose elective course choices cluster in a particular field of study, providing them with an opportunity to explore an intellectual passion in greater depth. Secondary fields are entirely optional. For a complete listing of secondary fields and their requirements, go to the undergraduate *Handbook for Students*. A few secondary fields do not have affiliated concentrations:

- Celtic Languages and Literatures
- Ethnicity, Migration, Rights (EMR)
- Global Health and Health Policy (GHHP)
- Medieval Studies
- Microbial Sciences
- Mind, Brain, and Behavior (MBB)
- Regional Studies—Russia, Eastern Europe, and Central Asia (REECA)

Profiles of these secondary fields appear in the pages that follow. One additional secondary field – Energy & Environment is affiliated with the Environmental Science & Public Policy concentration, and is also profiled in this guide.



# CELTIC LANGUAGES & LITERATURES (*secondary*)

Warren House  
11 Prescott St.  
617-495-1206  
[celtic.fas.harvard.edu](http://celtic.fas.harvard.edu)



## WHO WE ARE

Harvard is the only university in the United States where you can explore the culture, literature, history and languages of all the Celtic-speaking peoples. A secondary field in Celtic will introduce you to a vibrant and varied subject that encompasses literatures and languages from medieval to contemporary. Some students take a broad interest in the Celtic cultures, others in Celtic folklore and mythology, and some in the Celtic languages and literatures of Ireland, Scotland, or Wales. We teach some of the classics of the Celtic literatures in English translation but we also offer instruction in the original linguistically-significant languages, both medieval and modern. These languages now receive unparalleled support in their home countries, making this an ideal, vital, and exciting time to engage with them. Irish literature with its tales of kings, heroes, saints and fantastical beings is the oldest vernacular literature in Western Europe. The Welsh poetic tradition encompasses heroic deeds, loss and lament, romantic love and the beauties of the natural world in patterns of fascinating complexity, and Welsh stories are some of the earliest in which King Arthur appears. Scotland's Gaelic folklore tradition is considered to be the 'finest flower of Western Europe'. With courses on topics as diverse as The Mabinogion, Finn, the Great Gaelic Hero, and Food and Fantasy in Irish Tradition, we have courses for every interest in the Celtic world.

## EXPLORE



### Suggested gateway courses:

Courses such as 'The Celts' (CELTIC 103) or 'Celtic Mythology' (CELTIC 137) provide excellent gateways to the study of Celtic. Our departmental site details a number of suggested 'sample tracks' for those pursuing a secondary field in Celtic.

These tracks include Celtic Cultures, Irish Language and Literature, Welsh Language and Literature, Celtic Folklore and Mythology, and Irish Language.

For those interested in beginning study of one of the modern languages explore these sites:

- [learngaelic.net](http://learngaelic.net) (for Scottish Gaelic)
- [saysomethinginwelsh.com](http://saysomethinginwelsh.com) (for Welsh)
- [gaeilge.ie](http://gaeilge.ie) (for Irish)

You are very welcome to attend our annual Harvard Celtic Colloquium, a truly international three-day conference. You are also invited to attend both our regular departmental seminar series and our social gatherings.

## ALUMNI



Several of our Secondary Fielders have been awarded Fulbright or Mitchell scholarships to allow them to pursue further study in Celtic in Europe. Others are pursuing graduate degrees in their fields of concentration, including evolutionary biology, neuroscience, and engineering, but treasure their ongoing connection to our departmental community.

# ENERGY & ENVIRONMENT

## (secondary)

Harvard University Center for the  
Environment  
24 Oxford St., 3rd Floor  
[espp.fas.harvard.edu/espp-scondary-field](http://espp.fas.harvard.edu/espp-scondary-field)



## WHO WE ARE

The energy-environment challenge is a defining issue of our time, and one of Harvard's greatest contributions to meeting that challenge will be the education of a new generation of leaders in science, business, law, design, and public service. To this end, the Environmental Science and Public Policy (ESPP) program, in coordination with the Harvard University Center for the Environment (HUCE), is pleased to offer the secondary field in Energy and Environment (E&E). Through coursework and a colloquium, students engaged in the E&E secondary field will increase their exposure to, and literacy in, the interdisciplinary nature of issues related to energy and the environment. In the context of the E&E secondary field, 'Energy' refers to the production, distribution, and use of energy by individuals and society for a variety of purposes. This includes the various technologies, policies, and challenges associated with meeting increasing global energy demands. 'Environment' refers to the understanding of the relationships and balances of the natural and constructed world at multiple scales, including how anthropogenic activities and policies affect the intimate relationship between energy demand, environmental quality, and climate change. Students from a wide range of concentrations, including the humanities, are invited to participate in the program to explore how different disciplinary perspectives on energy and environment intersect and inform one another. For example, a student concentrating in English may wish to increase their knowledge of the environment and energy from the perspectives of environmental literature or history. A student studying global health may want to better understand the impacts of climate change on water resources, nutrition, and human health. Or, a student in the physical sciences may want to expand their training by improving their understanding of climate dynamics and energy production to support their interest in materials science and energy storage. All participating students share exposure to the core issues related to climate change, the consequences of energy choices, and changes in our physical and biological environment, preparing them to make informed professional and personal decisions about some of the most pressing societal challenges of the 21st century.

## EXPLORE



Students choose one foundational course from the following options, which include content related to both energy and environment:

- SPU 25. Energy: Perspectives, Problems and Prospects (M. McElroy)
- SPU 29. The Climate-Energy Challenge (D. Schrag)
- SPU 31. Energy Resources and the Environment (J. Shaw)
- SLS 22. Human Influences on Life in the Sea (R. Woollacott, J. McCarthy)
- ESPP 11. Sustainable Development (W. Clark)
- ES 6. Environmental Science and Technology (C. Vecitis)

### QUESTIONS?

N. Michele Holbrook, Head Tutor: [holbrook@oeb.harvard.edu](mailto:holbrook@oeb.harvard.edu) |  
Eric Simms, Program Administrator: [esimms@fas.harvard.edu](mailto:esimms@fas.harvard.edu) |

# ETHNICITY, MIGRATION, RIGHTS (*secondary*)

2 Arrow St., Room 431

617-495-4048

[emr.fas.harvard.edu](http://emr.fas.harvard.edu)



## WHO WE ARE

The Standing Committee on Ethnicity, Migration, Rights (EMR) focuses on the closely linked areas of ethnicity, migration, indigeneity, and human rights to provide curricular and co-curricular enrichment for Harvard College students. The committee serves as a clearinghouse for courses giving attention to fluid group boundaries that emerge nationally and internationally within contexts of forced and voluntary migration. Questions of rights and specifically human rights – including political, legal, cultural, and economic rights – occupy an important position within studies of shifting ethnic landscapes. EMR is charged with expanding offerings regarding ethnic communities within the United States, with particular attention to Asian American, Latino, and Native American topics. At the same time, many offerings listed by the committee are broadly comparative and international in their content. EMR offers two secondary field pathways, one in Ethnicity, Migration, Rights and one in Latino Studies. Courses in EMR are taught by faculty from across the disciplines in FAS as well as at other Harvard schools and draw on materials from the social sciences and humanities. The Committee also offers a secondary concentration.

## EXPLORE



Several designated courses serve as “Portal Courses” to the field of EMR. Portal Courses are taught by faculty with expertise in one or more areas across ethnicity, migration, and human rights. Portal Courses may be taken at any time in pursuit of the secondary field and are wonderful gateways to further study in EMR.

### Portal Courses:

- English 68: Migrations - American Immigrant Literature
- Music 97c: Music in Cross-Cultural Perspective
- Societies of the World 30: Montezuma’s Mexico - Then and Now
- Societies of the World 44: Human Trafficking, Slavery and Abolition in the Modern World
- United States in the World 15: Is the American Racial Order Being Transformed?

For a complete listing of EMR courses, including additional courses, go to [emr.fas.harvard.edu](http://emr.fas.harvard.edu). Students interested in EMR may also want to attend some of our public events. The Committee hosts a

discussion series in the undergraduate houses called “Ask Big Questions.” These events are led by faculty who facilitate discussion around some of the “big questions” that students encounter through study in EMR. Additionally, EMR hosts lectures and outreach events throughout the year. Visit the EMR website for access to the events calendar or to sign up for the email list

## ALUMNI



Alumni in EMR are equipped to work in a diverse, globalized, multicultural world. They understand how human groups often divide along lines of ethnicity. They also appreciate the impact of migration on ethnicity as well as its frequent connection to rights. Former students have pursued a variety of interests after graduation. Some alumni have gone on to study international peace processes, to teach in developing areas of the world, and to work with Americorps in underprivileged communities in the United States. Alumni have pursued roles in the business, legal, and financial sectors as well. Studies related to EMR also provide a broad, critical background for graduate studies across the disciplines. EMR offers students a great amount of flexibility to tailor the program to fit their career and life goals.

## QUESTIONS?

Tessa Lowinske Desmond, Program Administrator, Academic Advisor: [tessa\\_desmond@harvard.edu](mailto:tessa_desmond@harvard.edu), 617-495-4048

# EUROPEAN HISTORY, POLITICS, & SOCIETIES (*secondary*)

The Minda De Gunzburg Center for  
European Studies  
22 Kirkland St.  
[ces.fas.harvard.edu](http://ces.fas.harvard.edu)



134

## WHO WE ARE

The secondary field in European History, Politics, and Societies (EHPS) offers students the opportunity to engage in the foundational study of this region from an interdisciplinary perspective. The requirements of the field are based on the principle that a nuanced understanding of modern Europe comes from a program of study which integrates various academic disciplines rather than focusing on an isolated subject.

This secondary field is offered by the Center for European Studies (CES), which is the home of Europe at Harvard, and the locus of innovative research on European history and contemporary affairs. The Center's 12 resident faculty members from four social science departments and 40 non-resident faculty affiliates from FAS and Harvard's professional schools offer over 120 courses on Europe in a broad range of disciplines.

In addition to coursework on modern Europe, CES provides Harvard College students with the opportunity for funded research and internships. Its faculty and staff offer critical guidance in defining a multidisciplinary program of study that corresponds to students' individual intellectual interests and complements their chosen concentrations. The Center typically organizes over 150 events involving more than 300 speakers from academia, politics and public affairs each year. These events are forums which allow students to probe both scholarly and practical questions and add an important dimension to their classroom learning.

## EXPLORE



Suggested gateway courses:

- EHPS offers some thirty courses from the social sciences which serve as excellent gateways to the study of modern Europe. Because of the field's interdisciplinary nature, three of the six gateway courses must be in social science disciplines and need to come from at least two different departments/disciplines. Student Programs section at [ces.fas.harvard.edu](http://ces.fas.harvard.edu) provides a full listing, including the courses from the humanities.

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### QUESTIONS?

Aida Vidan, Student Program Coordinator: [avidan@fas.harvard.edu](mailto:avidan@fas.harvard.edu), 617-495-4303 |

# GLOBAL HEALTH & HEALTH POLICY (*secondary*)

14 Story St.  
4th Floor  
[ghhp.fas.harvard.edu](http://ghhp.fas.harvard.edu)



## WHO WE ARE

The incidence and meaning of disease and injury, the quality and cost of health care services to prevent and treat those diseases and injuries, the variable access of citizens to those services, the role of government and politics in the provision and regulation of health care – these fundamental issues and many more are central concerns of health policy both in the United States and abroad. Indeed, health care affects the life of every individual, whether through treatment of illness, financing of public and private health insurance, care of vulnerable populations, education about the health risks and benefits of behaviors that affect health, or adoption of regulations to reduce exposure to toxic environments. A secondary field in Global Health and Health Policy (GHHP) could explore any of these topics within the United States or across the world, moving into such themes as: accountability and governance (the role of the state versus transnational organizations and corporations in global health); the relevance and morality of global socioeconomic inequality in health; the risk of pandemic diseases and their economic and psychological impact on populations; the consequences of political change on a country's health; and the challenges resulting from complex emergencies and vulnerable populations in fragile states. The natural sciences, the social sciences, and the humanities all contribute to the study of global health and health policy. Harvard offers many different perspectives and programs concerning health. Students may explore aspects of health care, health policy, and health science through many perspectives, approaches and subject matter.

## EXPLORE



GHHP designates a handful of courses as foundational courses. Foundational courses are good gateways to further study in GHHP but may be taken at any time in pursuit of the secondary field:

- Societies of the World 24: Global Health Challenges - Complexities of Evidence-Based Policy
- Societies of the World 25: Case Studies in Global Health - Biosocial Perspectives
- United States in the World 11: American Health Care Policy
- [Note: Empirical and Mathematical Reasoning 20: The Business and Politics of Health substitutes as a foundational course in years when USW 11 is not offered]

Freshman seminars also offer a path to exploring GHHP. There are many health-related ones that satisfy GHHP distributional requirements.

## ALUMNI



Our alumni pursue a wide range of careers. Many go on to medical school or research positions, but others establish careers in public health, consulting, and politics, as well as in the financial, business, and legal fields. Some of our most recent graduates hold the following positions: fellow at a state department of public health AIDS initiative, fellow at CMS Center for Medicare and Medicaid Innovation, teacher at Teach for America, analyst at a biotech start-up, research coordinator for the epidemiology department of a major university, co-founder/ CEO of a nonprofit dedicated to water security in Uganda, and senior analyst at a well-known healthcare consulting firm. The GHHP secondary field is flexible and allows you to tailor your program to your individual interests and goals. Our graduated students tell us that GHHP prepared them for cross-disciplinary thinking and critical analysis, and feel the research and application skills they gained translate well across professional fields and graduate study disciplines. If you would like to discuss how GHHP might fit in with your own career options, please come speak with us.

# MEDIEVAL STUDIES

## (secondary)

Barker Center

12 Quincy St.

617-496-5857

[medieval@fas.harvard.edu](mailto:medieval@fas.harvard.edu)



## WHO WE ARE

The Committee on Medieval Studies is an interdisciplinary group of faculty whose teaching and research focus on the “Middle Ages”, a thousand-year-long period of European, Near Eastern, and North African history and culture spanning the period between “Antiquity” (c. 1000 BCE-500 CE) and “Modernity” (c. 1500 CE on). Those who considered themselves “modern” came to view the medieval period condescendingly, associating it with a small number of basic themes and images such as heroism and chivalry, courtly love, feudal society, religious fervor, and repression. Of course, all of these are stereotypes which tell us far more about “modernity” than they do about the period itself, which profoundly shaped Western as well as global society as we know it today. While learning about the vast and varied period known as the Middle Ages offers a unique and valuable perspective on modern history and culture, it also teaches us how people who are so much like us in so many ways can nonetheless live in a world that is unutterably different. Studying the Middle Ages allows you to see the many different ways in which human societies function, invent, create, believe, and interact. The Middle Ages is both “us” and “not us,” at once part of our collective heritage and something very, very different. Medieval Studies is an exciting and wide-ranging area of study, and the secondary field is designed to immerse Harvard students in the richness, variety, and complexity of medieval societies. In addition to one foundational four-credit course, which can be taken in any discipline, students take four more advanced courses, which expose them to the various disciplines comprising Medieval Studies. While some of these courses teach or require specialist skills, most are intended to be accessible to any interested student, whatever his or her field of specialization. Those wishing to make Medieval Studies the focus of their concentration are encouraged to consider the “Medieval World” field within History and Literature, a collaborative program of study emphasizing the cross-disciplinary and cross-regional investigation of medieval societies, politics, and cultures.

## EXPLORE



Making the Middle Ages (Culture and Belief 51) offers a general introduction to the cultures and beliefs of medieval Europe through an object-centered study of medieval artifacts and cultural productions, inviting students to explore the interdisciplinary field of Medieval Studies and introducing them to how we might tease ideas out of the remnants of past societies.

Authority and Invention: Medieval Art and Architecture (Medieval Studies 107) investigates a series of masterworks of art and architecture in Western Europe from the decline of Rome to the dawn of the Italian Renaissance, focusing on the creative tension between the impulse to originality and the authority of classical models in the search for new art forms.

The Byzantine Empire (History 1035) brings to life the greatest empire you’ve probably never heard of: the Byzantine (Eastern Roman) empire, which out-lived the fall of Rome by a thousand years. This course traces Byzantium’s history between 600 and 1453 CE, revealing how it preserved the institutions and politics of imperial Rome, transformed them to face new realities and demands, and in the process created a great new Mediterranean civilization.

From Type to Self in the Middle Ages (Literature 157) investigates the meaning of the poetic “I” in pre-modern literatures by analyzing medieval and early modern autobiographical writing, ranging from spiritual autobiographies (Augustine, Margery Kempe, Teresa of Ávila) to letter collections, maqama literature, troubadour lyric, Hispano-Jewish poetry, pilgrimage narratives, medieval allegories, and the picaresque novel.

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### QUESTIONS?

Sean Gilsdorf, Program Administrator, Undergraduate Advisor: [gilsdorf@fas.harvard.edu](mailto:gilsdorf@fas.harvard.edu) |

Nicholas Watson, Chair, Committee on Medieval Studies: [nwatson@fas.harvard.edu](mailto:nwatson@fas.harvard.edu) |

# MICROBIAL SCIENCES

(secondary)

Vanserg Bldg., Rm 118  
25 Francis Ave.  
617-496-1008  
[msi.harvard.edu](http://msi.harvard.edu)



## WHO WE ARE

Microbial Sciences is an interdisciplinary approach to studying the impact of microbes at scales from global ecosystems down to single-celled microenvironments. The academic program emphasizes the joint study of species diversity, metabolic function, geochemical impact, and medical and pharmaceutical applications of microbial sciences. Faculty affiliated with the Microbial Sciences Initiative (MSI) include members from the departments of Molecular and Cellular Biology, Organismic and Evolutionary Biology, Earth and Planetary Sciences, and Chemistry and Chemical Biology, as well as the School of Engineering and Applied Sciences, Harvard Medical School, Harvard School of Public Health, and the Forsyth Institute.

## EXPLORE



- Check out the MSI website: [msi.harvard.edu](http://msi.harvard.edu)
- Join the MSI email list: [msi.harvard.edu/misc/listserv.html](http://msi.harvard.edu/misc/listserv.html)
- Attend a Friday chalk-talk breakfast or Thursday seminar: [msi.harvard.edu/events/events.html](http://msi.harvard.edu/events/events.html)
- Apply for an MSI Summer Fellowship: [msi.harvard.edu/undergraduates/undergrad\\_research\\_fellowship](http://msi.harvard.edu/undergraduates/undergrad_research_fellowship)

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### QUESTIONS?

Karen Lachmayr, MSI Executive Director: [klachmay@fas.harvard.edu](mailto:klachmay@fas.harvard.edu) |

# MIND, BRAIN, & BEHAVIOR (*secondary*)

Mind Brain Behavior Interfaculty  
Initiative

275 William James Hall, Room 841  
33 Kirkland Street  
[mbb.harvard.edu](http://mbb.harvard.edu)



## WHO WE ARE

Knowledge about mind, brain, and behavior has expanded exponentially in recent years as complex domains of mental function and behavior are becoming susceptible to scientific elucidation. The traditional disciplines have proven remarkably successful at expanding this knowledge and have been enhanced by intellectual innovations that stem from crossing traditional disciplinary lines. Contributing to this project, the Mind/Brain/Behavior Interfaculty Initiative (MBB) was established in 1993 to help bring the perspectives of neuroscience into sustained and constructive dialogue with those of other natural sciences, the social sciences, and the humanities.

In its undergraduate programs, MBB connects students with a diverse group of faculty from across Harvard's schools and disciplines. MBB offers tracks that allow students to integrate a research-focused study of mind/brain/behavior with their concentration studies and a secondary field for students from any concentration. MBB secondary field students may either (1) integrate their MBB interests with their concentration but without a research focus or (2) study mind/brain/behavior largely independently from their concentration.

## EXPLORE



We recommend that you take SLS 20, Psychological Science, in your first year. SLS 20 serves as an introduction to both psychology and mind/brain/behavior and is also a requirement for the MBB secondary field. If your schedule does not allow you to take SLS 20 until your sophomore year, that is usually fine.

Beyond coursework, you can learn about and take part in MBB in a variety of ways. Our website [mbb.harvard.edu](http://mbb.harvard.edu) covers all things MBB. We also send monthly e-newsletters with information about upcoming events, program updates, and research opportunities. You can join our emailing list on the front page of our website.

Undergraduates are very welcome to attend MBB public events, including talks by distinguished Harvard and visiting lecturers, as well as an annual symposium designed specifically for undergraduates. We also encourage you to participate in activities of the Harvard Society for Mind/Brain/Behavior (HSMBB), a very active undergraduate organization that holds a large number of talks, informal conversations, and symposiums with faculty and researchers from a wide range of MBB areas. The HSMBB website is [hsmbb.org](http://hsmbb.org), its Facebook page is <http://facebook.com/HSMBB>, and you can join its email list at [lists.hcs.harvard.edu/mailman/listinfo/hsmbb-list](mailto:lists.hcs.harvard.edu/mailman/listinfo/hsmbb-list).

## ALUMNI



MBB can be a strong component of a 21st century liberal arts education, and as such can help prepare you for any career. Most MBB students are preparing for medical and/or research careers, but MBB graduates have gone into all other major professions. For example, MBB secondary students who are economics concentrators often go into finance, and many who are computer science concentrators will work in high tech. MBB students have pursued other career options as well – our first MBB grad became a jazz musician. If you would like to explore how MBB might relate to your career interests, come speak with us.

# REGIONAL STUDIES RUSSIA, EASTERN EUROPE & CENTRAL ASIA (*secondary*)

Kathryn W. and Shelby Cullom Davis  
Center for Russian & Eurasian Studies  
1730 Cambridge St., 3rd Floor  
617-495-4037

[daviscenter.fas.harvard.edu/study/academic-programs/undergraduate-secondary-field](https://daviscenter.fas.harvard.edu/study/academic-programs/undergraduate-secondary-field)



## WHO WE ARE

The REECA secondary field is based at the Davis Center for Russian and Eurasian Studies, which marshals a rich and diverse array of resources to advance the interdisciplinary study of this world region. The Davis Center's thirty-two faculty associates, representing seven disciplines at four Harvard schools, offer over 160 language and area studies courses each year. Outside the classroom, the Davis Center hosts a full schedule of film screenings, book talks, seminars, conferences, and special events that engage a dynamic and collegial scholarly community, including visitors from the region. Each spring, the Davis Center hosts the Undergraduate Colloquium on Russian and Eurasian Studies, where students present their research findings. We offer internships in the region, for example, at the research center of the Central Bank of Armenia, and travel grants for thesis research, internships, and language study.

## EXPLORE



### Suggested gateway courses:

Browse regional course listings by entering "REECA" in the course search box on [my.harvard.edu](https://my.harvard.edu) to find a Freshman Seminar or General Education course that appeals to you. 100-level and 1000-level departmental courses can also be great starting points. Don't have room in your schedule for a class? Check out the Davis Center's Facebook page at [facebook.com/DCRES](https://facebook.com/DCRES) for more ideas.

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### QUESTIONS?

Donna Griesenbeck, Student Program Officer: [griesenb@fas.harvard.edu](mailto:griesenb@fas.harvard.edu), 617-495-1194 |

# Notes

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# Notes

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# Notes

**By Concentration:**

AAAS - **W** (Barker Center, Second Floor)  
 Anthropology: Archaeology Program - **D** (Peabody Museum)  
 Anthropology: Social Anthropology Program - **E** (Tozzer)  
 Applied Math - **A** (Pierce Hall, 110)  
*Astrophysics - Perkin Lab/60 Garden St*  
 Biomedical Engineering - **A** (Pierce Hall 110)  
 Celtic Languages & Literature - **AA** (Warren House)  
 Chemistry - **F** (Biolabs)  
 Chemistry & Physics - **J** (McKay)  
 Classics - **X** (Boylston, 204)  
 Comparative Literature - **V** (Dana-Palmer House)  
 Computer Science - **A** (Pierce Hall, 110)  
 CPB - **I** (Fairchild, 95)  
 E&E - **C** (Center for the Environment, Third Floor)  
 East Asian Studies - **H** (9 Kirkland Place)  
 Economics - **M** (Littauer Center)  
 Electrical Engineering - **A** (Pierce Hall, 110)  
*EMR - Two Arrow Street*  
 Engineering Sciences - **A** (Pierce Hall, 110)  
 English - **W** (Barker Center, First Floor)  
 EPS - **B** (Hoffman Labs)  
 ESPP - **C** (Center for the Environment, Third Floor)  
 Folklore & Mythology - **AA** (Warren House)  
 Germanic Languages & Literature - **W** (Barker Center, 365)  
*GHHP - 14 Story Street*  
 Government - **P** (CGIS Knafel Building)  
 HDRB - **F** (Biolabs)  
 HEB - **D** (Peabody Museum, Fifth Floor)  
 History - **T** (Robinson Hall)

History & Literature - **W** (Barker Center, 122)  
 History of Art & Architecture - **R** (Sackler Museum)  
 History of Science - **N** (Science Center, 371)  
 Integrative Biology - **F** (Biolabs, 1082b)  
 Linguistics - **X** (Boylston, Third Floor)  
 Mathematics - **N** (Science Center, Third Floor)  
 MBB - **O** (William James Hall, 275)  
 MCB - **I** (Fairchild, 95)  
 Mechanical Engineering - **A** (Pierce Hall, 110)  
 Medieval Studies - **W** (Barker Center)  
*Microbial Sciences - 25 Francis Ave*  
 Music - **L** (Music Building)  
 NELC - **G** (Semitic Museum)  
 Neurobiology - **F** (Biolabs, 1082c)  
 Philosophy - **S** (Emerson Hall, 209a)  
 Physics - **K** (Jefferson Lab)  
 Psychology - **O** (William James Hall, 218)  
 REECA - **Q** (1730 Cambridge St, Third Floor)  
 Religion - **W** (Barker Center)  
 Romance Languages & Literature - **X** (Boylston, Fourth Floor)  
 Slavic Languages & Literature - **W** (Barker Center, Third Floor)  
 Social Studies - **O** (William James Hall, Third Floor)  
 Sociology - **O** (William James Hall, Sixth Floor)  
 South Asian Studies - **Y** (1 Bow St, 312)  
 Special Concentrations - **W** (Barker Center, 120)  
 Statistics - **N** (Science Center, Seventh Floor)  
 Theater, Dance & Media - **Z** (Farkas Hall)  
 VES - **U** (Carpenter Center for the Visual Arts)  
 WGS - **X** (Boylston, Ground Floor)

*Concentrations in italics are not within scope of map. Consult complete campus map at [map.harvard.edu](http://map.harvard.edu)*

**By Location:****A - Pierce Hall**

Applied Math (110)  
 Biomedical Engineering (110)  
 Computer Science (110)  
 Electrical Engineering (110)  
 Engineering Sciences (110)  
 Mechanical Engineering (110)

**B - Hoffman Labs**

EPS

**C - Center for the Environment**

E&E (Third Floor)  
 ESPP (Third Floor)

**D - Peabody Museum**

Archaeology Program (Anthro)  
 HEB (Fifth Floor)

**E - Tozzer Anthropology Building**

Social Anthropology Program

**F - Biolabs**

Chemistry  
 HDRB  
 Integrative Biology (1082b)  
 Neurobiology (1082c)

**G - Semitic Museum**

NELC

**H - 9 Kirkland Place**

East Asian Studies

**I - Fairchild**

CPB (95)  
 MCB (95)

**J - McKay**

Chemistry & Physics

**K - Jefferson Lab**

Physics

**L - Music Building**

Music

**M - Littauer Center**

Economics

**N - Science Center**

History of Science (371)  
 Mathematics (Third Floor)  
 Statistics (Seventh Floor)

**O - William James Hall**

MBB (275)  
 Psychology (218)  
 Social Studies (Third Floor)  
 Sociology (Sixth Floor)

**P - CGIS Knafel Building**

Government

**Q - 1730 Cambridge St**

REECA (Third Floor)

**R - Sackler Museum**

History of Art & Architecture

**S - Emerson**

Philosophy (209a)

**T - Robinson Hall**

History

**U - Carpenter Center for the Visual Arts**

VES

**V - Dana-Palmer House**

Comparative Literature

**W - Barker Center**

AAAS (Second Floor)  
 English (First Floor)  
 Germanic Languages & Literature (365)  
 History & Literature (122)  
 Medieval Studies  
 Religion  
 Slavic Languages & Literature (Third Floor)  
 Special Concentrations (120)

**X - Boylston**

Classics (204)  
 Linguistics (Third Floor)  
 Romance Languages & Literature (Fourth Floor)  
 WGS (Ground Floor)

**Y - 1 Bow St**

South Asian Studies (312)

**Z - Farkas Hall**

Theater, Dance & Media

**AA - Warren House**

Celtic Languages & Literature  
 Folklore & Mythology

**Questions?  
...Come find us!**

