

An interdepartmental program

Comparative Literature

Courses of Study:
Minor
Major (BA)

Objectives

The interdisciplinary program of comparative literature engages the study of literatures and cultures within and across national boundaries. It also comprises comparative analysis of literary texts and genres with visual art forms, social discourse and practices, as well as other expressions of cultural innovation. These forms pre-exist us—we are born into a certain culture, which consists of a set of discourses and practices—and shape our intellectual awareness of culture. They are not, however, static but dramatic in nature and continually undergo change. Analysis of cultural differences, diversities, and similarities will promote a greater knowledge of the rapidly changing globe we inhabit and also deepen the student's critical understanding of his or her own culture.

How to Become a Major or Minor

All students are welcome to enroll in any course in the program unless prerequisites are stipulated. Students interested in learning more about the comparative literature major or minor are encouraged to speak with the undergraduate advising head for comparative literature. Keep in mind that three literature courses must be taken in a language other than English. Students are strongly encouraged to spend at least one semester abroad, preferably in a country whose primary language is not English.

Program Committee

Richard Lansing, Chair and Undergraduate Advising Head
(Italian Studies)

Mary Campbell
(English and American Literature)

Jonathan Decter
(Near Eastern and Judaic Studies)

Stephen Dowden
(German, Russian, and Asian Languages and Literature)

Matthew Fraleigh
(German, Russian, and Asian Languages and Literature)

Jane Hale
(French and Francophone Studies)

Patricia Johnston
(Classical Studies)

Edward Kaplan
(French and Francophone Studies)

Thomas A. King
(English and American Literature)

Susan Lanser
(Comparative Literature; English and American Literature; Women's and Gender Studies)

James Mandrell
(Hispanic Studies)

Robin Feuer Miller
(German, Russian, and Asian Languages and Literature)

Michael Randall
(French and Francophone Studies)

Esther Ratner
(French and Francophone Studies)

Lucia Reyes de Deu
(Hispanic Studies)

Fernando Rosenberg
(Hispanic Studies)

Harleen Singh
(German, Russian, and Asian Languages and Literature; Women's and Gender Studies)

Faith Smith
(African and Afro-American Studies; English and American Literature)

Requirements for the Major

The major in comparative literature requires a minimum of nine courses, distributed as follows:

1. ECS 100a or ECS 100b to be taken as early as possible in the student's academic career.
2. Three upper-level literature courses (normally numbered 110 and above) taught in a language other than English. The three courses may be drawn from more than one language tradition.
3. Two upper-level COML courses and two courses drawn from a list of approved COML cross-listed courses. On occasion, courses not listed may count toward the major if approved by the undergraduate advising head.
4. Senior Project: All majors are required to enroll in and complete one of the following options in the senior year: COML 97a or 97b (Senior Essay, a one-semester course), or COML 99d (Senior Thesis, a full-year course). Department honors will be awarded on the basis of cumulative excellence in all courses taken in the major, including the senior thesis.

No more than four courses may double-count toward the COML major and another major or minor.

Requirements for the Minor

The minor in comparative literature requires five courses, distributed as follows:

1. ECS 100a or ECS 100b, to be taken as early as possible in the student's academic career.
2. Four electives, including at least two upper-level literature courses (normally 100 or above), each taught in a language other than English, and one COML course. All electives will be selected in consultation with the undergraduate advising head.

Courses of Instruction

(1–99) Primarily for Undergraduate Students

COML 97a Senior Essay

Offers students an opportunity to produce a senior essay under the direction of an individual instructor. Usually offered every fall.

Staff

COML 98a Independent Study

May be taken only by majors, with the written permission of the advising head and the chair of the department.

Readings and reports under faculty supervision. Offered as needed.

Staff

COML 98b Independent Study

May be taken only by majors, with the written permission of the advising head and the chair of the department.

Reading and reports under faculty supervision. Offered as needed.

Staff

COML 99d Senior Thesis

May be taken only with the permission of the advising head.

This is a full-year course that must be taken by all senior majors in comparative literature who wish to undertake honors work. Usually offered every year.

Staff

(100–199) For Both Undergraduate and Graduate Students

COML 102a Love in the Middle Ages

[hum]

A study of the conventions of courtly love and other forms of love, sacred and erotic, in medieval literature. Readings include Dante's *Vita Nuova*, Boccaccio's *Decameron*, Chaucer's *Canterbury Tales*, *Sir Gawain and the Green Knight*, and Chrétien de Troyes' *Yvain*. Usually offered every second year.

Mr. Lansing

COML 103b Madness and Folly in Renaissance Literature

[hum]

A study of the theme of madness and folly as exemplified by the major writers of the Renaissance, including Erasmus, Rabelais, Montaigne, Boccaccio, Ariosto, Shakespeare, Petrarch, and Cervantes. Usually offered every second year.

Mr. Lansing

COML 108a Creating New Histories and Identities beyond the Nation: Transnational Female Voices in the U.S.

[hum]

Readings are in English.

An examination of literature (prose, poetry, memoirs) written by first- and second-generation immigrant women exploring the ways in which the experience of immigration shaped a new identity that at the same time incorporates and rejects national boundaries. Usually offered every second year.

Ms. Reyes de Deu

COML 122b Writing Home and Abroad: Literature by Women of Color

[hum nw]

Examines literature (prose, poetry, and memoirs) written by women of color across a wide spectrum of geographical and cultural sites. Literature written within the confines of the "home country" in the vernacular, as well as in English in immigrant locales, is read. The intersections of race, ethnicity, sexuality, gender, and class as contained by the larger institutions of government, religion, nationalism, and sectarian politics are examined. Usually offered every second year.

Ms. Singh

COML 123a Perfect Love?

[hum]

Analyzes how the desire to achieve a "perfect form of love," defined as one that denies the body in favor of a more spiritual attachment, can lead to illness and highly unhealthy behavior in literary texts and modern film. Filmmakers and authors studied include Wang-Kar Wai, Marguerite de Navarre, Boccaccio, Chrétien de Troyes, and Hawthorne. Usually offered every second year.

Mr. Randall

COML 130a Poetic Voices of Protest

[hum]

Poets are citizens, lovers, artists. Discusses major poems and prose by Whitman, Baudelaire, Rilke, T. S. Eliot, Anna Akhmatova, Abraham Joshua Heschel, and others celebrating American nationhood and protesting world war, moral chaos, or Soviet dictatorship. Topics include myth, self-assertion, love and intimacy, decadence, ethics, despair and faith, a mother's voice. Students present a poetry slam. Usually offered every third year.

Mr. Kaplan

COML 144b The Outsider as Artist and Lover

[hum]

Baudelaire, Kierkegaard, Kafka, and Simone Weil exemplify the struggle to achieve meaning through literature, but they believed that art or God required them to renounce love and marriage. Buber's analysis of "dialogue" will clarify the interrelation of creativity, faith, and human intimacy in their short stories, prose poems, essays, and philosophical and autobiographical writings. Usually offered every third year.
Mr. Kaplan

COML 160a Contemporary East European Literature

[hum]

Open to all students. Conducted in English. Examines works of major East European (Polish, Czech, Russian, and other) authors in the historical context of late Communist and post-Communist experience. Special attention to reading for artistic qualities and engagement of historical and political problems. Usually offered every second year.
Mr. Powelstock

COML 165a Reading, Writing, and Teaching across Cultures

[hum wi]

Contemporary literary representations of literacy, schooling, and language from a cross-cultural perspective. Students also analyze their own educational trajectories and experiences with writing and reading. Usually offered every year.
Ms. Hale

COML 179a Life Stories, Spiritual and Profane

[hum]

Examines modern life stories (such as biographies, autobiographies, journals, fiction) concerning personal identity in relation to the search for God, mysticism and anguish, conversion, moral action, and intimate love. Augustine's *Confessions* and Teresa of Avila's *Life* provide models for contemporary writers such as Thomas Merton and Dorothy Day. Usually offered every third year.
Mr. Kaplan

COML 185a Dickens and Dostoevsky

[hum]

Considers such issues as narrative, literary realism, and the manipulation of the grotesque and the sublime in representative works of Dickens and Dostoevsky. Because Dostoevsky was an avid reader of Dickens, class addresses questions of influence, particularly with regard to their shared thematic interests. Usually offered every second year.
Ms. Miller

HUM 125a Topics in the Humanities

[hum]

An interdisciplinary seminar on a topic of major significance in the humanities; the course content and instructor vary from year to year; may be repeated for credit with instructor's permission. Usually offered every third year.
Staff

Cross-Listed Courses

AAAS 133b

The Literature of the Caribbean

AAAS 134b

Novel and Film of the African Diaspora

AAAS 145b

What Is Race?

ANTH 105a

Myth and Ritual

CLAS 170a

Classical Mythology

EAS 175a

Masterpieces of Chinese Literature

ECS 100a

European Cultural Studies Proseminar: Modernism

ECS 100b

European Cultural Studies Proseminar: Making of European Modernity

ENG 77b

Literatures of Global English

ENG 107a

Caribbean Women Writers

ENG 111b

Postcolonial Theory

ENG 114b

Gender and the Rise of the Novel in England and France

ENG 121a

Sex and Culture

ENG 127a

The Novel in India

ENG 127b

Migrating Bodies, Migrating Texts

ENG 128a

Alternative Worlds: Modern Utopian Texts

ENG 144b

The Body as Text

ENG 147b

South African Literature and Apartheid

ENG 181a

Making Sex, Performing Gender

FA 40b

The Formation of Jewish, Christian, and Islamic Art

GECS 167a

German Cinema: Vamps and Angels

GECS 180b

European Modernism and the German Novel

HBRW 170a

Israeli Cinema

HUM 10a

The Western Canon

IECS 140a*Dante's Divine Comedy***NEJS 175b**

Responses to the Holocaust in Literature

NEJS 180a

Love and Passion in Medieval Jewish Literature and Thought

SECS 169a

Travel Writing and the Americas: Columbus's Legacy

THA 115b

The Avant-Garde

Department of Computer Science

Courses of Study:
 Minor
 Major (BA/BS)
 Postbaccalaureate Certificate (PB)
 Combined BA/MA
 Combined PB/MA
 Master of Arts
 Doctor of Philosophy

Objectives

Undergraduate Major

The undergraduate program in computer science teaches the theoretical fundamentals and practical aspects of computing, preparing students for creative jobs in the computer industry and/or for graduate school. In addition, our curriculum is a stimulating and useful preparation for a number of indirectly related professions, such as law, medicine, and economics.

Postbaccalaureate Program in Computer Science

The computer science department offers a postbaccalaureate certificate program for students with a bachelor's degree in a different field who wish to prepare for graduate school or a career in computer science. Students who complete the program may apply to the combined postbaccalaureate/MA program.

Graduate Program in Computer Science

The Graduate Program in Computer Science is concerned with the fundamental concepts arising in the development and use of computing systems, including the study of computational complexity and information theory, the design and analysis of serial and parallel algorithms, the design of programming languages, systems, and artificial intelligence.

A normal program of study in computer science at Brandeis starts with two years of basic graduate coursework. At the completion of this coursework, students are eligible for a master's degree. During this initial two-year period, candidates for the degree of Doctor of Philosophy select a thesis topic and advisor. Dissertation research typically requires two to three additional years.

How to Become a Major

Previous experience in computer programming is helpful, but not necessary (students lacking such knowledge may take COSI 11a [Programming in Java and C] in their first year). As a rule, our course sequence should not be started later than the sophomore year.

How to Be Admitted to the Graduate Program

The general requirements for admission to the Graduate School, given in an earlier section of the *Bulletin*, apply here. Applicants for admission to the computer science program must submit three letters of recommendation and are encouraged to take the Graduate Record Examination and the advanced test in computer science. Funds from research grants and fellowships are available to provide financial support for well-qualified students.

Faculty

Timothy Hickey, Chair and Undergraduate Advising Head

Analysis of algorithms. Logic programming and parallel processing. Symbolic manipulation. Groupware.

Richard Alterman

Artificial intelligence. Cognitive modeling. Natural language processing. Memory-based reasoning and everyday activity.

Mitch Cherniack

Databases. Software engineering. Programming languages.

Jacques Cohen

Compiler design. Analysis of parallel algorithms. Logic programming. Data structures. Bioinformatics.

Ira Gessel

Combinatorics.

Pengyu Hong

Computational biology. Image processing. Statistical machine learning.

Harry Mairson

Logic in computer science. Lambda calculus and functional programming. Type theory and constructive mathematics. Complexity theory. Algorithmics.

Jordan Pollack

Artificial intelligence. Neural networks. Machine learning. Evolutionary computation. Dynamical systems.

James Pustejovsky, Graduate Advising Head

Artificial intelligence. Computational linguistics. Machine learning.

Liuba Shrira

Operating systems. Distributed systems. Multi-cache computing.

James Storer

Data compression and image processing. Computational geometry. Parallel computing. Algorithms.

Requirements for the Major

Degree of Bachelor of Arts

The minimum requirements for the computer science major are twelve full courses plus two half-credit lab courses:

- A.** Core courses: COSI 21a and 22a, 21b and 22b, 29a, 30a, 31a, and 101a.
- B.** Mathematics courses: MATH 10a, 15a.
- C.** Electives: At least four additional COSI courses, excluding 2a, 11a, and 99d. At most, two electives can be cross-listed courses.

Degree of Bachelor of Science

The minimum requirement for the computer science major are seventeen full courses and two half-credit lab courses:

- A.** Core courses: COSI 21a and 22a, 21b and 22b, 29a, 30a, 31a, and 101a.
- B.** Mathematics courses: MATH 10a, 10b, and 15a.
- C.** Two cross-listed courses from other departments (students should consult the individual course entries for prerequisites, corequisites, and special notes).
- D.** Electives: At least six additional COSI courses, excluding COSI 2a, 11a, and 99d. At most, two of these can be cross-listed courses.

Honors

Graduation with honors in computer science requires completion and defense of a senior honors thesis; students considering this option should take note of the prerequisites for enrollment in COSI 99d (Senior Research).

Combined BA/MA Program

Available only to Brandeis students who have completed all requirements for the undergraduate BA degree and have performed well in the computer science major. Students should apply in their senior year, at which time they should propose a course of study for the fifth year that typically consists of six graduate-level courses, which may include independent study.

Requirements for the Minor

- A.** COSI 21a and 22a.
- B.** Five additional computer science courses, one of which may be a cross-listed course, or another course approved by the undergraduate advising head.

Special Notes Relating to Undergraduates

Students may submit a written request to count a course from another department to satisfy one of the required computer science electives. Approval of such a request is based on the relationship of this course to the student's other computer science electives.

Requirements for the Postbaccalaureate Certificate in Computer Science

- A.** Introductory courses: COSI 11a, 21a.
- B.** Core courses: COSI 21b, 22b, 29a, 30a, and 31a.
- C.** Electives: At least four additional COSI courses, excluding 2a and 99d. At most, two electives can be cross-listed courses.

Combined Postbaccalaureate/MA Program

Available only to Brandeis students who have completed all requirements for the postbaccalaureate certificate. Students should propose a course of study that typically consists of six graduate-level courses, which may include independent study.

Special Notes Relating to Postbaccalaureate Students

Postbaccalaureate students with a programming background may ask to be exempted from the introductory courses COSI 11a, 21a. They may also submit a petition to replace core courses (in which they have previous work experience or study) with electives. Students with no previous background are encouraged to take the introductory courses in Summer School and then complete the remaining core and elective courses during the following academic year.

Requirements for the Degree of Master of Arts

Course Requirements

Satisfactory completion of an approved schedule of nine courses numbered 100 or above, which generally must include at least two courses from each of the following groups:

- A.** AI Group: COSI 111a, 112a, 113b, 114b, 120a, 200a, 200b, 210a, 210b, 215a, 216a, 217a, 300a, 300b.
- B.** Languages and Systems Group: COSI 120a, 127b, 140a, 146a, 147a, 150a, 155b, 200a, 200b, 210a, 210b, 220a, 227b, 300a, 300b.
- C.** Algorithms and Theory Group: COSI 120a, 160a, 170a, 171a, 175a, 180a, 188a, 190a, 200a, 200b, 210a, 210b, 240b, 300a, 300b.

Residence Requirement

The minimum residency requirement is one and a half years.

Language Requirement

There is no foreign language requirement.

Requirements for the Degree of Doctor of Philosophy

Advisor

By the end of the first year the student must obtain the consent of a computer science faculty member to serve as advisor and dissertation committee chair.

Course Requirements

The same as that for the Master of Arts.

Teaching Requirement

The mentoring, training, and evaluation of teaching fellows is an ongoing and important component of the Graduate Program in Computer Science. Students normally teach one course per year, beginning as graders of problem sets and assignments, and move progressively to higher levels of involvement with teaching in courses across the curriculum. They participate in the design and delivery of course lectures and each year, under the guidance of their faculty, they present several lectures. Whether students are preparing for an academic and research career or an industry position, the teaching fellow experience is valuable training in course preparation and technical communication.

Thesis Committee and Proposal

1. Establishment by the advisor and the director of graduate studies of a thesis committee consisting of the advisor, two other Brandeis faculty, and one appropriate external member from outside Brandeis.

2. An approved, written thesis proposal by the candidate that surveys the relevant literature and states the goals of the dissertation and topics to be investigated (including aspects already completed or under way), along with an oral presentation to the thesis committee that is open to computer science faculty who wish to attend.

Thesis Defense

Public defense of a completed dissertation will be announced three weeks in advance. Copies of the complete thesis will be available to the faculty during these three weeks.

Residence Requirement

The minimum residency requirement is three years.

Language Requirement

There is no foreign language requirement.

Courses of Instruction**(1–99) Primarily for Undergraduate Students****COSI 2a Introduction to Computers**

[sn]

An introduction to the basic principles underlying computer hardware and software and to the implications of the wider use of computers in society. Topics will include hardware, software, Web page design, applet and servlet programming, the Internet, privacy and security issues, as well as a survey of current research directions, including artificial intelligence and parallel computing. Usually offered every year.

Mr. Hickey

COSI 11a Programming in Java and C

[sn]

A general introduction to structured programming and problem solving using C and Java in the context of the World Wide Web. Students also learn GUI programming and advanced HTML authoring. There are weekly programming assignments.

Computer science majors with adequate programming skills may wish to take COSI 21a directly. Usually offered every year.

Staff

COSI 21a Data Structures and the Fundamentals of Computing

[qr1 sn]

Prerequisite: COSI 11a or programming facility in C. Corequisite: COSI 22a. This course satisfies the quantitative reasoning requirement only when taken with the corresponding lab.

An introduction to the fundamental concepts of computation: discrete structures (sets, relations, functions, sequences, graphs), the fundamental data structures and algorithms for sorting and searching (lists, queues, dequeues, heaps, hashing, binary trees, tries), and the analysis of algorithms (predicate logic, termination and correctness proofs, computational complexity). The associated laboratory course is COSI 22a. Usually offered every year.

Mr. Storer

COSI 21b Structure and Interpretation of Computer Programs

[qr1 sn]

Prerequisites: COSI 21a, 22a. Corequisite: COSI 22b. This course satisfies the quantitative reasoning requirement only when taken with the corresponding lab.

An introduction to the fundamental models of computation: functional programming, abstract data types, imperative programming, object-oriented programming, data-driven programming, meta-linguistic abstraction, and logic programming. The associated laboratory course is COSI 22b. Usually offered every year.

Mr. Mairson

COSI 22a Fundamentals of Programming

[qr2]

Corequisite: COSI 21a. May yield half-course credit toward rate of work and graduation. Two semester-hour credits.

An introduction to the tools and techniques needed to design, construct, verify, analyze, and maintain programs. One afternoon a week and one one-hour lecture a week.

Usually offered every year.

Mr. Storer

COSI 22b Programming Paradigms

[qr2]

Prerequisites: COSI 21a, COSI 22a.

Corequisite: COSI 21b. May yield half-course credit toward rate of work and graduation. Two semester-hour credits.

A practical introduction to the use of appropriate computational paradigms and programming methodologies to solve complex problems. Problem domains vary from year to year but typically include numerical programming, symbolic computation, natural language processing, simulation of physical systems, interpretation and compilation of programming languages. One afternoon a week and one one-hour lecture a week.

Usually offered every year.

Mr. Mairson

COSI 25a Human-Computer Interaction

[sn]

Prerequisite: COSI 2a, or COSI 11a, or permission of the instructor. This course may not be repeated for credit by students who have taken COSI 125a in previous years.

Covers the basic theory and concepts of human-computer interaction. Topics include methodologies for designing and testing user interfaces, interaction styles and techniques, design guidelines, intelligent user interfaces, hypermedia, adaptive systems, information search and visualization, and computer-supported cooperative work. The laboratory work is designed to give the student practice in a set of basic techniques used in the area of human-computer interaction. Usually offered every second year.

Mr. Alterman

COSI 29a Discrete Structures

[sn]

Covers topics in discrete mathematics with applications within computer science. Some of the topics to be covered include graphs and matrices; principles of logic and induction; number theory; counting, summation, and recurrence relations; discrete probability. Usually offered every year.

Mr. Gessel

COSI 30a Introduction to the Theory of Computation

[sn]

Prerequisites: COSI 21a,b; COSI 22a,b; COSI 29a.

Formal treatment of models of computation: finite automata and regular languages, pushdown automata and context-free languages, Turing machines, and recursive enumerability. Church's thesis and the invariance thesis. Halting problem and undecidability, Rice's theorem, recursion theorem. Usually offered every year.

Mr. Mairson

COSI 31a Computer Structures and Organization

[sn]

Prerequisites: COSI 21a,b; COSI 22a,b.

Processors, memories, and peripherals and their interactions. Fundamental structures of computers from logic gates and circuits, through machines and assembly language, to the overall structure of operating systems. Usually offered every year.

Ms. Shrira

COSI 33b Internet and Society

[sn]

Prerequisite: COSI 2a or COSI 21a.

An interdisciplinary survey of the Internet. Taught by a team of professors from several different departments, the course content will vary from year to year. Some particular topics to be covered are the architecture of the Internet (and the implications this has on its regulation), intellectual property, privacy, censorship, e-commerce, online education, and research. Usually offered every year.

Mr. Hickey

COSI 65a Introduction to 3-D Animation

[sn]

Covers the fundamental concepts of 3-D animation and teaches both the theory underlying 3-D animation as well as the skills needed to create 3-D movies. Students demonstrate their understanding of the concepts by creating several short animated movies. Usually offered every third year.

Mr. Hickey

COSI 93a Research Internship and Analysis

Provides students with an opportunity to work in a computer science research lab for one semester, pursuing a project that has the potential to produce new scientific results. Student and faculty member mutually design a project for the semester which supports the research agenda of the group. Students must attend all research group meetings and present their findings in oral and written form at the end of the semester. The project typically includes background research, some lab work, and collaboration with other group members. Course requires signature of the instructor, is subject to the availability of undergraduate research positions, and is typically open only to juniors and seniors.

Staff

COSI 98a Independent Study

Open to exceptional students who wish to study an area of computer science not covered in the standard curriculum. Usually offered every year.

Staff

COSI 98b Independent Study

Open to exceptional students who wish to study an area of computer science not covered in the standard curriculum. Usually offered every year.

Staff

COSI 99d Senior Research

Prerequisites: Open only to seniors. A GPA of 3.50 or higher in the major after completing spring semester of the junior year. Submission of a thesis proposal during the spring semester of the junior year. This proposal must be signed by a faculty member who has agreed to supervise the thesis.

Research assignments and preparation of a report under the direction of an instructor. Usually offered every year.

Staff

(100–199) For Both Undergraduate and Graduate Students**COSI 101a Fundamentals of Artificial Intelligence**

[sn]

Prerequisites: COSI 21a,b; 22a,b; COSI 29a. This course may not be repeated for credit by students who have taken COSI 35a in previous years.

Survey course in artificial intelligence.

Introduction to Lisp and heuristic programming techniques. Topics include problem solving, planning natural language processing, knowledge representation, and computer vision. Usually offered every year.

Mr. Pollack

COSI 111a Topics in Computational Cognitive Science

[sn]

Prerequisite: COSI 35a, COSI 101a, or COSI 125a or permission of the instructor.

Focuses on the cognitive aspects of computer-mediated group problem solving. Topics include computer-supported cooperative work, the role of convention in the coordination of activity, problem solving and skill acquisition, adaptive systems, distributed cognition, and discourse. The laboratory work is designed to give the student practice with the ideas and techniques under discussion. Usually offered every year.

Mr. Alterman

COSI 112a Theory and Models of Intelligent Behavior

[sn]

Prerequisites: COSI 21b or 29a; COSI 35a or COSI 101a.

Topics include logics for world modeling, representation of goals and plans, action theory, models of shared knowledge, learning theories for environmental modeling, and the social construction of concepts. Usually offered every third year.

Mr. Pustejovsky

COSI 113b Machine Learning

[sn]

Prerequisite: COSI 35a or COSI 101a.

A seminar on genetic algorithms, genetic programming, evolutionary programming, blind watchmaking, and related topics, ultimately focusing on co-evolutionary spirals and the automatic construction of agents with complex strategies for games. Usually offered every second year.

Mr. Pollack

COSI 114b Topics in Computational Linguistics

[sn]

Prerequisites: COSI 21b or 29a; COSI 35a or COSI 101a.

Provides a fundamental understanding of the problems in natural language understanding by computers, and the theory and practice of current computational linguistic systems. Of interest to students of artificial intelligence, algorithms, and the computational processes of comprehension and understanding. Usually offered every year.

Mr. Pustejovsky

COSI 118a Computer-Supported Cooperation

[sn]

Prerequisite: COSI 25a or the permission of the instructor.

Covers basic theory and concepts of computer-supported collaborative work and learning. Laboratory work enables the student to practice a set of basic techniques as they apply to the development of computer-mediated collaboration. The content and work of the course are specifically designed for an interdisciplinary class of students from computer science and the social sciences. Usually offered every second year.

Mr. Alterman

COSI 120a Topics in Computer Systems

[sn]

Prerequisite: COSI 21a.

Content will vary from year to year. May be repeated for credit. Prerequisites may vary with the topic area; check with instructor for details. Usually offered every third year.

Staff

COSI 123a Statistical Machine Learning

[sn]

Prerequisite: MATH 10a, 15a, or familiarity with basic concepts in probability and statistics and differential calculus.

Focuses on learning from data using statistical analysis tools and deals with the issues of designing algorithms and systems that automatically improve with experience. This course is designed to give students a thorough grounding in the methodologies, technologies, mathematics, and algorithms currently needed by research in learning with data. Usually offered every year.

Mr. Hong

COSI 127b Database Management Systems

[sn]

Prerequisites: COSI 21a, 22a, and 29a.

Introduces database structure, organization, and languages. Studies relational and object-oriented models, query languages, optimization, normalization, file structures and indexes, concurrency control and recovery algorithms, and distributed databases. Usually offered every second year.

Mr. Cherniack

COSI 128a Modern Database Systems

[sn]

Prerequisite: COSI 127b.

Covers advanced topics in database systems such as concurrency control, recovery, security, and data mining. Usually offered every fourth year.

Mr. Cherniack

COSI 140a Logic Programming

[sn]

Prerequisite: COSI 31a.

Studies the relationship of Prolog to predicate calculus, horn clauses, unification algorithms, intelligent backtracking, infinite trees, inequalities, implementation issues, and concurrent Prolog. Usually offered every second year.

Mr. Cohen

COSI 146a Fundamentals of Operating Systems

[sn]

Prerequisites: COSI 21a,b; 22a,b; 31a; MATH 10a (MATH 10b recommended).

This course may not be repeated for credit by students who have taken COSI 46a in previous years.

Design of systems that share resources. Specific topics: naming, binding, protection, reliability, synchronization, scheduling, storage allocation, interprocess communication. Usually offered every second year.

Staff

COSI 147a Networks and Distributed Computing

[sn]

Prerequisites: COSI 31a or the equivalent, 146a, C/C++/UNIX programming skills.

Introduces state-of-the-art networking technologies, architectures, and protocols, with an emphasis on the Internet and the World Wide Web. Specific topics include naming and RPC at the application level, TCP/IP and UDP/IP at the transport/network levels, and Ethernet, ATM, FDDI, and wireless technologies at the physical level. Usually offered every second year.

Ms. Shrira

COSI 155b Computer Graphics

[sn]

An introduction to the art of displaying computer-generated images and to the design of graphical user interfaces. Topics include graphic primitives; representations of curves, surfaces, and solids; and the mathematics of two- and three-dimensional transformations. Usually offered every third year.

Staff

COSI 160a Parallel Computing and Programming

[sn]

Prerequisites: COSI 29a and 31a.

An introduction to parallel computation at the levels of architecture, communication, data structures, algorithms, analysis, programming models, and programming languages. Usually offered every second year.

Staff

COSI 170a Information Theory and Coding

[sn]

Prerequisites: COSI 29a and 30a; MATH 10a.

Information theory as applied to the problems of rewriting digital data to be more concise, more error-resistant, or more appropriate to physical environments. Usually offered every second year.

Staff

COSI 171a Cryptology: Cryptography and Cryptanalysis

[sn]

Prerequisites: COSI 21a and 29a.

The study of data secrecy, privacy, and security. How can information be encoded so that an adversary can neither alter it, forge it, nor gain any knowledge of it? Usually offered every second year.

Staff

COSI 175a Data Compression and Multimedia Processing

[sn]

Prerequisites: COSI 21a, 29a, 30a, and 31a.

Selected topics in data compression and image and video processing, including adaptive lossless compression, lossy image and video compression, transformations on image and video, multimedia retrieval problems, parallel algorithms. Usually offered every second year.

Mr. Storer

COSI 178a Computational Molecular Biology

[sn]

Prerequisites: COSI 11a and COSI 30a.

COSI 30a must be taken before or concurrently with this course.

An overview of basic concepts in molecular biology. Topics include algorithmic coverage of pattern matching, strings, graphs, fragment assembly of DNA, physical mapping of DNA, phylogenetic tree reconstruction, detection of introns and exons, formal language view of DNA, and biological computers. Usually offered every third year.

Mr. Cohen

COSI 180a Algorithms

[sn]

Prerequisites: COSI 21a,b, and 29a. This course may not be repeated for credit by students who have taken COSI 30b in previous years.

Basic concepts in the theory of algorithm design and analysis, including advanced data structures and algorithms, parallel algorithms, and specialized topics. Usually offered every second year.

Staff

COSI 190a Introduction to Programming Language Theory

[sn]

Prerequisite: COSI 21a or familiarity with a functional programming language, set theory, and logic.

Lambda calculus and combinatory logic: Church-Rosser theorem, continuity and computability, denotational semantics, model theory. Typed lambda calculi: strong normalization, representability, completeness of equational reasoning, Curry-Howard isomorphism. Introduction to ML: polymorphism and type inference, module system. Category theory: categorical combinators and compilation, continuations, monads. Usually offered every second year.

Mr. Mairson

(200 and above) Primarily for Graduate Students**COSI 200a Readings**

Specific sections for individual faculty members as requested.

Staff

COSI 200b Readings

Specific sections for individual faculty members as requested.

Staff

COSI 210a Independent Study

Usually offered every year.

Staff

COSI 215a Advanced Topics in Artificial Intelligence

Topics vary from year to year. The course may be repeated with the approval of the instructor. Usually offered every second year.

Staff

COSI 216a Topics in Natural Language Processing*Prerequisite: COSI 35a or COSI 101a.*

Reviews recent trends in computational approaches to linguistics, semantics, knowledge representation for language, and issues in parsing and inferences. Usually offered every fourth year.

Mr. Pustejovsky

COSI 217a Topics in Adaptive Systems

Prerequisite: COSI 35a or COSI 101a.

In nature, systems with greater complexity than any designed by humans arise without a designer. The central question explored is: How can complex modular organization arise without an intelligent designer? The class reads about theories of organization in different settings and scales (cells, brains, minds, behavior, society, economies) and studies papers, models, and algorithms from a variety of fields that might shed light on the issue. Usually offered every third year.
Mr. Pollack

COSI 227b Advanced Topics in Database Systems

Prerequisite: COSI 127b.

An in-depth treatment of advanced topics in database management systems. Topics vary from year to year and may include distributed databases, query processing, transaction processing, and Web-based data management. Usually offered every second year.
Mr. Cherniack

COSI 230a Topics in Computational Biology

This course aims to transcend traditional departmental boundaries and facilitate communications between experimental biologists and computational scientists. Through reading literature and small research projects, students will be introduced to problems in computational biology and learn the methods for studying them.
Mr. Hong

COSI 240b Computational Logic

Prerequisite: Some previous exposure to logic, computation theory, and functional programming.

An introduction to logic in computer science. Propositional and first-order logic: completeness, compactness, unification and resolution theorem proving, and circuit and query complexity. Intuitionistic logic: Curry-Howard isomorphism, normalization, Kripke models, and double-negation embeddings. Higher-order logic: Godel's "dialectica" theorem, program synthesis, and decision problems. Usually offered every second year.
Mr. Mairson

COSI 300a Master's Project

Usually offered every year.
Staff

COSI 300b Master's Project

Usually offered every year.
Staff

COSI 310a Seminar in Artificial Intelligence

Usually offered every second year.
Staff

COSI 315b Current Topics in Learning and Neural Nets

Usually offered every second year.
Staff

COSI 340a Seminar in Programming Languages

Usually offered every second year.
Staff

COSI 390a Seminar in Theory of Computation

Usually offered every second year.
Staff

COSI 400d Dissertation Research

Specific sections for individual faculty members as requested.
Staff

Cross-Listed Courses**ANTH 138a**

Social Relations in Cyberspace

ANTH 174b

Virtual Communities

BCHM 170b

Bioinformatics

CHEM 144a

Computational Chemistry

LING 130a

Semantics: The Structure of Concepts

MATH 30a

Introduction to Algebra, Part I

MATH 30b

Introduction to Algebra, Part II

MATH 36a

Probability

MATH 38b

Number Theory

MATH 39a

Introduction to Combinatorics

PHIL 106b

Mathematical Logic

PHYS 29a

Electronics Laboratory I

PHYS 29b

Electronics Laboratory II

PHYS 32b

Microprocessor Laboratory

A graduate program

Courses of Study:
Master of Arts

Cultural Production

Objectives

The graduate program in cultural production, leading to the MA degree, provides students with theoretical perspectives and practical experience for analyzing the dynamic intersections of art, imagination, technology, politics, and public spheres. The courses in the program investigate how historical, expressive, and aesthetic representations are generated, circulated, and interpreted in both local and global contexts. Incorporating humanistic, artistic, and social scientific perspectives, the program permits students to explore their varied interests in, for example, ethnic festivals, verbal arts, social memory, aesthetic creativity, museum exhibitions, public history, cultural heritage, historical preservation, archival documentation, digital technologies, and visual media. In addition to mastering analytical and comparative skills necessary for the study of cultural forms and their public spheres, students gain practical expertise, through credit-earning internships, in developing and coordinating cultural productions, ranging from museum installations and heritage festivals to civic memorials and historical archives.

Students may complete the program's degree requirements of eight courses in two semesters; however, it is expected that many students will enroll part-time, while keeping jobs at local-area institutions and organizations. Enrollment will also be open on a course-by-course basis for interested professionals or professionals-in-training.

How to Be Admitted to the Graduate Program

The general requirements for admission to the Graduate School, given in an earlier section of this *Bulletin*, apply to candidates for admission to this area of study. Candidates must also submit a personal statement that discusses their reasons for applying for this MA, and their academic training, career objectives, relevant experience, and current institutional affiliation (if any). Three letters of recommendation are required. Students are encouraged, though not required, to visit the campus and to talk to the director and other members of the faculty committee.

Faculty Committee

Mark Auslander, Director
(Anthropology)

Aliyyah Abdur-Rahman
(English and American Literature)

Mary Baine Campbell
(English and American Literature)

Cynthia Cohen
(Coexistence and Conflict)

Judith Eissenberg
(Music)

Tory Fair
(Fine Arts)

Jane Hale
(Romance Studies)

Paul Jankowski
(History)

Peter Kalb
(Fine Arts)

Allan Keiler
(Music)

Thomas King
(English and American Literature)

James Mandrell
(Romance Studies)

Charles McClendon
(Fine Arts)

Laura J. Miller
(Sociology)

Richard J. Parmentier
(Anthropology)

John Plotz
(English and American Literature)

Jonathan Sarna
(Hornstein Jewish Professional Leadership Program; Near Eastern and Judaic Studies)

Ellen Schattschneider
(Anthropology)

Nancy Scott
(Fine Arts)

Harleen Singh
(German, Russian, and Asian Languages and Literature; Women's and Gender Studies)

Faith Smith
(English and American Literature; African and Afro-American Studies)

Requirements for the Degree of Master of Arts

Program of Study

This graduate program involves a minimum of one academic year in residence at Brandeis in which students complete eight semester courses, including an internship course and a master's research paper course. In consultation with the director, each entering student selects an area of concentration from one of the three clusters listed below:

Cluster 1: Performance: Object/Body/Place

Courses in performance theory, theater, discursive practice, embodiment, mythopoesis, adornment, and the city as lived text.

Cluster 2: Visuality: Image/Media/Signs

Courses in comparative experiences of vision, cinema, television, digital and other new media, Internet studies, materiality, photography, advertising, and mass communications.

Cluster 3: Memory: Museums/Preservation/Archives

Courses in historical consciousness, the politics and poetics of museums and memorials, traumatic memory, historical methods, artifact conservation, documentation, and archival practice. Students take eight semester courses, including:

A. CP 201a Making Culture: Theory and Practice.

B. CP 202b Internship in Cultural Production.

C. CP 203a Directed Research in Cultural Production for MA Students.

D. Two courses in the student's concentration cluster, one of which is identified as a core course in that cluster.

E. Two elective courses, one from each of the other two clusters.

F. One additional course from the program's electives or another Brandeis course approved by the director.

Residence Requirement

The residence requirement for this program is one year of full-time study.

Language Requirement

There is no foreign language requirement for the master's degree.

Courses of Instruction

(200 and above) Primarily for Graduate Students

CP 201a Making Culture: Theory and Practice

Examines theories of mass, public, popular, and elite culture. Surveys the social dynamics of remembrance, visuality, and performance. Discusses how culture forms emerge in "high" and "low" contexts, from media conglomerates and major museums to "outsider" artists, indigenous communities, and street performers. Usually offered every year. Mr. Auslander

CP 202b Internship in Cultural Production

Interning in a cultural institution (such as a museum, heritage site, or national park), the student participates in the development of a specific project or cultural production, such as an exhibition or public program. Students write a report on their experiences and give a presentation on their internship work at an annual workshop/conference. We anticipate the development of summer practicum or internship courses on museums and cultural production to be held alternately in South Africa, Mississippi, and Scotland. Usually offered every semester. Mr. Auslander

CP 203a Directed Research in Cultural Production for MA Students

Independent research on a topic approved by the director and mentored by the student's advisor, leading to a written master's paper. Usually offered every semester. Staff

CP 301a Readings in Cultural Production

Mr. Auslander

Cluster 1: Performance: Object/Body/Place

Core Courses

ANTH 105a

Myth and Ritual

ANTH 114b

Verbal Art and Cultural Performance

ENG 151b

Theater/Theory: Investigating Performance

ENG 181a

Making Sex, Performing Gender

THA 130a

Suzuki

Elective Courses

ANTH 112a

African Art and Aesthetics

ANTH 115b

The Archaeology of Space and Landscape

ENG 144b

The Body as Text

ENG 177b

American Popular Music and Contemporary Fiction

ENG 280a

Making It Real: Tactics of Discourse

FREN 142b

City and the Book

HIST 140a

A History of Fashion in Europe

MUS 209a

Seminar in Psychoanalysis and Biography: The Psychoanalytic Study of the Artist

NEJS 161b

Representations of the City in Literature, Art, and Architecture

Cluster 2: Visuality: Image/Media/Signs

Core Courses

AMST 130b

Television and American Culture

ANTH 126b

Symbol, Meaning, and Reality: Explorations in Cultural Semiotics

ANTH 130b

Visuality and Culture

ANTH 184b

Cross-Cultural Art and Aesthetics

FA 102a

American Avant-Garde Film and Video

FILM 100a

Introduction to the Moving Image

JOUR 103b

Advertising and the Media

PHIL 113b
Aesthetics: Painting, Photography, and Film

SOC 120b
Globalization and the Media

SOC 146a
Mass Communication Theory

Elective Courses

ANTH 128a
Meaning and Material Culture

ENG 101b
Cyber-Theory

ENG 280a
Making It Real: Tactics of Discourse

GECS 150a
From Rapunzel to Riefenstahl: Real and Imaginary Women in German Culture

GECS 167a
German Cinema: Vamps and Angels

SOC 221b
Sociology of Culture

SPAN 195a
Latinos in the United States: Perspectives from History, Literature, and Film

THA 155a
Icons of Masculinity

Cluster 3: Memory: Museums/Preservation/Archives

Core Courses

ANTH 108b
History, Time, and Tradition

ANTH 159a
Museums and Public Memory

HIST 204b
Narrative Strategies: Writing History in a Postmodern Age

NEJS 181b
Film and the Holocaust

Elective Courses

AMST 144b
Signs of Imagination: Gender and Race in Mass Media

COEX 250a
The Arts of Building Peace

ENG 127b
Migrating Bodies, Migrating Texts

ENG 147b
South African Literature and Apartheid

ENG 211a
Psychoanalytic Theory

ENG 237a
Reading the Black Transnation

GECS 160a
In the Shadow of the Holocaust: Global Encounters

HIST 169a
Thought and Culture in Modern America

HIST 170a
Italian Films, Italian Histories

NEJS 133a
Art, Artifacts, and History: The Material Culture of Modern Jews

NEJS 190a
Describing Cruelty

NEJS 291a
History and Memory in the Middle East

SAS 140a
We Who Are at Home Everywhere: Narratives from the South Asian Diaspora

SOC 148b
The Sociology of Information