

SPRING 2019 BIOLOGY COURSE DIRECTORY

For advising you will need:

- ✓ Degree Advice Report
- ✓ Transcript Preview
- ✓ Advising Worksheet
- ✓ Course Directory

COURSE NOTES:

Courses fulfilling breadth requirements:

Cell & Molecular (CM)

- CAS BI 206 Genetics
- CAS BI 216 Intensive Genetics

Ecology, Behavior & Evolution (EBE)

- CAS BI 260 Marine Biology
- CAS BI 303 Evolutionary Ecology
- CAS BI 306 Biology of Global Change

Neurobiology & Physiology (PN)

- CAS BI 315 Systems Physiology
- CAS BI 325 Principles of Neuroscience

Upper Level Lab Courses Offered Spring 2019:

- CAS BB 522 Molecular Biology Lab
- CAS BI 302 Vertebrate Zoology
- CAS/MET BI 303 Evolutionary Ecology
- CAS BI 306 Biology of Global Change
- CAS/MET BI 315 Systems Physiology
- CAS/MET BI/CH 422 Biochemistry 2
- CAS BI 449 Neuroscience Design Lab
- CAS BI 528 Biochemistry Lab 2
- CAS BI Tropical Ecology Program Courses
- CAS BI Undergrad. Research Courses (first 4-credit semester)

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REGISTRATION NOTES:

- **Permission required courses:** Students may not register for these courses on their own, but need the instructor to sign an [Add/Drop form](#) which the student would take to CAS Advising or the Registrar.
- **Full time status** is 12-18 credits per semester. Seniors are automatically awarded a fee waiver so that they may take up to 20 credits per semester without additional fees. Non-seniors with a 3.3 GPA may submit the [CAS Course Overload Fee Waiver form](#).
- **PDP, ROTC, and CAS FY/SY courses do not count** toward the 128 credits needed to graduate with a BA.
- The following courses **do not count** toward the Biology or BMB major or minor:
 - CAS BI 114 Human Infectious Diseases
 - CAS BI 210 Human Anatomy
 - CAS BI 582 Seminar in Biology

BIOCHEMISTRY & MOLECULAR BIOLOGY

UNDERGRADUATE RESEARCH IN BMB

Undergraduate Research in Biochemistry and Molecular Biology courses (CAS BB 191 - CAS BB 491) require an application. For more information on research requirements and to apply, visit www.bu.edu/bmb/research. Time commitment is a minimum of 6 hours a week for 2-credit research and 12 hours a week for 4-credit research, not including preparation and evaluation.

CAS BB 192: UNDERGRADUATE RESEARCH IN BMB 1

Prereq: freshman standing, GPA in biochemistry and molecular biology (BMB) courses of at least 3.0, consent of instructor (faculty research mentor/sponsor), and approval of application by the BMB Research and Honors Committee.

[2 cr] Not for BMB major credit. Laboratory research under the supervision of a BMB faculty mentor. Research outside the BMB program is acceptable if approved and overseen by a BMB faculty sponsor.

Grading: Course grade is determined by laboratory performance.

CAS BB 292: UNDERGRADUATE RESEARCH IN BMB 2

Prereq: sophomore standing, GPA in biochemistry and molecular biology (BMB) courses of at least 3.0, consent of instructor (faculty research mentor/sponsor), and approval of application by the BMB Research and Honors Committee.

[2 cr] Not for BMB major credit. Laboratory research under the supervision of a BMB faculty mentor. Research outside the BMB program is acceptable if approved and overseen by a BMB faculty sponsor.

Grading: Course grade is determined by laboratory performance.

CAS BB 392: UNDERGRADUATE RESEARCH IN BMB 3

Prereq: junior standing, GPA in biochemistry and molecular biology (BMB) courses of at least 3.0, consent of instructor (faculty research mentor/sponsor), and approval of application by the BMB Research and Honors Committee.

[2 or 4 cr] Two credit option is not for BMB major credit. Laboratory research under the supervision of a BMB faculty mentor. Research outside the BMB program is acceptable if approved and overseen by a BMB faculty sponsor. Students can use one semester of 4-credit research to fulfill a BMB elective if not using Undergraduate Research or Honors Research for the advanced lab elective.

Grading: Course grade is determined by laboratory performance.

CAS BB 492: UNDERGRADUATE RESEARCH IN BMB 4

Prereq: senior standing, GPA in biochemistry and molecular biology (BMB) courses of at least 3.0, consent of instructor (faculty research mentor/sponsor), and approval of application by the BMB Research and Honors Committee.

Laboratory research under the supervision of a BMB faculty mentor. Research outside the BMB program is acceptable if approved and overseen by a BMB faculty sponsor. Students can use one semester of 4-credit research to fulfill a BMB elective if not using Undergraduate Research or Honors Research for the advanced lab elective.

Grading: Course grade is determined by laboratory performance.

BIOCHEMISTRY & MOLECULAR BIOLOGY

HONORS RESEARCH IN BMB

Honors Research in BMB offers students the ability to participate in two semesters of mentored 4-credit research (CAS BB 401 and 402) and 1-credit research seminars (CAS BB 497 and 498). Students also write and defend an honors thesis on their research. For more information on research requirements and to apply, visit www.bu.edu/bmb/research. Time commitment is a minimum of 12 hours a week, not including preparation and evaluation.

CAS BB 402: HONORS RESEARCH IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

Prereq: senior standing, GPA in biochemistry and molecular biology (BMB) courses of at least 3.5, consent of instructor (faculty research mentor/sponsor), and approval of application by the BMB Research and Honors Committee.

Coreq: CAS BB 497

Independent laboratory research under the supervision of a BMB faculty mentor. Research outside the BMB program is acceptable if approved and overseen by a BMB faculty sponsor. Successful completion of both CAS BB 401 and BB 402 may lead to a degree with honors in the major. Students must also present a research talk at the BMB symposium at the end of the spring semester of the academic year.

Grading: Course grade is determined by laboratory performance, oral presentation, written thesis, and defense of the thesis before a committee of three BMB faculty members.

CAS BB 498: HONORS RESEARCH IN BIOCHEMISTRY AND MOLECULAR BIOLOGY SEMINAR 1

Prereq: For students currently enrolled in the Honors BMB Program.

Coreq: CAS BB 401

[1 cr] A one-credit research seminar for students enrolled in Honors Research in BMB (CAS BB 401) or Graduate Research in BMB (CAS BB 591). Students present at the BMB Symposium. A minimum grade of B+ in BB 497/498 and BB 401/402 is required to graduate with Honors in BMB.

Grading: Attendance and participation.

GRADUATE RESEARCH IN BMB

Graduate Research in BMB is offered as part of the BA/MA program. This five-year program is only open to BMB majors and earns students a Bachelor's degree in BMB and a Master's degree in Biotechnology. For more information on the BA/MA program, visit www.bu.edu/bmb/bama-bulletin.

CAS BB 592: GRADUATE RESEARCH IN BIOCHEMISTRY AND MOLECULAR BIOLOGY

Prereq: Admission to the BA/MA Program.

Coreq: CAS BB 497 is encouraged.

Laboratory research conducted under the supervision of a BMB faculty sponsor. Research outside the BMB Program is acceptable if approved and overseen by a BMB faculty sponsor. Minimum of 15 hours per week in the lab, culminating in submission to the BMB Director of a written progress report and research outline for CAS BB 592.

Grading: Course grade is determined by laboratory performance.

Electives for the BMB major can be found in these sections:

Cell & Molecular (pgs. 4-8)
Physiology & Neurobiology (pgs. 14-16)
Metropolitan College (MET) (pgs. 17-18)

A list of courses accepted toward the BMB major can be found in the Bulletin at www.bu.edu/bmb/bulletin.

CELL & MOLECULAR

CAS BI 108: BIOLOGY 2

Prereq: High school biology and one semester college chemistry strongly recommended.

For students planning to major in the natural sciences and for premedical students. Required for biology majors. It is strongly recommended students complete CAS CH 101 (or equivalent) before this course. High school biology is assumed. Cell and molecular biology, Mendelian & molecular genetics, physiology, and neurobiology. Three hours lecture, three hours lab. Carries natural science divisional credit (with lab) in CAS. This course fulfills a single unit in each of the following BU Hub areas: Scientific Inquiry II, Quantitative Reasoning II, Teamwork/Collaboration, Critical Thinking

Lecture

A1	Loechler, McCall	Mon,Wed,Fri	10:10am - 11:00am
A2	Loechler, Tullai	Mon,Wed,Fri	12:20pm - 1:10pm
A3	Spilios	Mon,Wed,Fri	2:30pm - 3:20pm

Lab

B1	Mon	2:30pm - 5:15pm	D4	Wed	2:30pm - 5:15pm
B2	Mon	2:30pm - 5:15pm	D5	Wed	2:30pm - 5:15pm
B3	Mon	2:30pm - 5:15pm	D6	Wed	2:30pm - 5:15pm
B4	Mon	6:30pm - 9:15pm	D7	Wed	6:30pm - 9:15pm
B5	Mon	6:30pm - 9:15pm	D8	Wed	6:30pm - 9:15pm
B6	Mon	6:30pm - 9:15pm	E1	Thu	8:00am - 10:45am
C1	Tue	8:00am - 10:45am	E2	Thu	8:00am - 10:45am
C2	Tue	8:00am - 10:45am	E3	Thu	8:00am - 10:45am
C3	Tue	8:00am - 10:45am	E4	Thu	12:30pm - 3:15pm
C4	Tue	12:30pm - 3:15pm	E5	Thu	3:30pm - 6:15pm
C5	Tue	3:30pm - 6:15pm	E6	Thu	3:30pm - 6:15pm
C6	Tue	3:30pm - 6:15pm	E7	Thu	3:30pm - 6:15pm
C7	Tue	3:30pm - 6:15pm	E8	Thu	6:30pm - 9:15pm
C8	Tue	6:30pm - 9:15pm	F1	Fri	8:00am - 10:45am
D2	Wed	8:00am - 10:45am	F2	Fri	8:00am - 10:45am
D3	Wed	8:00am - 10:45am			

Notes: Meets with BI 116.

Textbooks & Technology: Sadava et al. *Life: The Science of Biology*, 11th ed., Sinauer Publ., 2017; TopHat Account; ExamSoft Account.

Grading: Four hourly exams, lecture 68%, lab 32%.

CAS BI 114: HUMAN INFECTIOUS DISEASES: AIDS TO TUBERCULOSIS

Prereq: None

Not for Biology major or minor credit. A study of the world's major human diseases, their causes, effects on history, pathology, and cures. Principles of immunology. Emphasis on present maladies such as AIDS, herpes, cancer, mononucleosis, tuberculosis, influenza, and hepatitis. This course is appropriate for non- majors and students in the health and paramedical sciences (Sargent College). Three hours lecture, three hours lab. Carries natural science divisional credit (with lab) in CAS. This course fulfills a single unit in the following BU Hub area(s): Scientific Inquiry I, Quantitative Reasoning II, Critical Thinking.

Lecture

A1	Co	Mon,Wed,Fri	9:05am - 9:55am
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Lab

B1	Mon,Wed	2:30pm - 4:15pm	C3	Tue,Thu	3:30pm - 5:15pm
C1	Tue,Thu	9:00am - 10:45am	D1	Mon,Wed	10:10am - 11:55am
C2	Tue,Thu	1:30pm - 3:15pm	D2	Mon,Wed	12:20pm - 2:05pm

Notes: Not for Biology major or minor credit.

Textbooks & Technology: *Microbiology Basic and Clinical Principles* - Norman McKay, TopHat Account, ExamSoft Account.

Grading: 4 lecture exams; laboratory.

CAS BI 116: BIOLOGY 2 WITH ISE LAB

Prereq: CH 101

Coreq: CH 116

Integration of general chemistry with biology and neuroscience, with an emphasis on how each discipline interacts experimentally. Laboratory focuses on projects relating to enzymes and their function. 3 lecture hours (meets with CAS BI 108 lecture), 3 hours lab.

Lecture

A1	Loechler, McCall	Mon,Wed,Fri	10:10am - 11:00am
A2	Loechler, Tullai	Mon,Wed,Fri	12:20pm - 1:10pm
A3	Spilios	Mon,Wed,Fri	2:30pm - 3:20pm

Lab

L1	Tue,Thu	6:30pm - 9:15pm	L2	Wed, Fri	2:30pm - 5:15pm
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Notes: Meets with BI 108 Lecture.

Textbooks & Technology: Sadava et al. *Life: The Science of Biology*, 11th ed., Sinauer Publ., 2017; TopHat Account; ExamSoft Account.

Grading: 4 lecture exams (52%), lecture homework (2%), in-lecture quizzes (4%), in-lecture TopHat questions (2%), lab (40%).

CELL & MOLECULAR

CAS BI 206: GENETICS

Prereq: CAS BI 108 and CAS CH 203 or equivalent

Principles of classical, molecular, and evolutionary genetics derived from analytical, molecular, and whole genome cytological evidence in animals, plants, and microorganisms. For BMB majors and Biology majors in the CMG track, BI 216 is highly recommended instead of BI 206. Three hours lecture, one hour discussion. Students may receive credit for CAS BI 206 or 216, but not both courses.

Lecture

A1 Celenza Tue,Thu 12:30pm - 1:45pm

Discussion

B1	Mon	12:20pm - 1:10pm	D1	Wed	8:00am - 8:50am
B2	Mon	12:20pm - 1:10pm	D2	Wed	12:20pm - 1:10pm
B3	Mon	1:25pm - 2:15pm	D3	Wed	1:25pm - 2:15pm
B4	Mon	2:30pm - 3:20pm	D5	Wed	2:30pm - 3:20pm
C1	Tue	8:00am - 8:50am			

Notes: Meets with BI 282 and with BI 216 for the first half of the semester.

Textbooks & Technology: 1) Required: Hartwell et al. *Genetics: from Genes to Genomes*. McGraw-Hill: 6th edition, book or ebook. 2) Recommended, but not required: Connect subscription that includes Smartbook. Both will be available through the BU Bookstore and other sources.

Grading: 80% avg. of four exam scores given during the semester. 20% discussion.

CAS BI 216: INTENSIVE GENETICS

Prereq: CAS BI 108 & BI 203 or equivalents to both, and CAS CH 203 or consent of instructor

Advanced alternative to CAS BI 206, emphasizing depth of coverage, class discussion, and reading research papers. BI216 (instead of BI206) is highly recommended for BMB majors and Biology majors in the CMG track. Principles of classical, molecular, and evolutionary genetics derived from analytical, molecular, and whole genome cytological evidence in animals, plants, and microorganisms. Three hours lecture, one hour discussion. Students may receive credit for CAS BI 216 or 206, but not both courses.

Lecture

A1 Celenza, Loechler Tue,Thu 12:30pm - 1:45pm
Thu 6:30pm - 8:15pm*

* This block of time is reserved for instructor-led discussion and the giving of exams.

Discussion

B1	Mon	12:20pm - 1:10pm	D2	Mon	11:15am - 12:05pm
B2	Mon	2:30pm - 3:20pm	E1	Wed	10:10am - 11:00am
D1	Wed	2:30pm - 3:20pm	E2	Tue	3:35pm - 4:25pm

Notes: Meets with BI206/282 for the first half of the semester

Textbooks & Technology: 1) Required: Hartwell et al. *Genetics: from Genes to Genomes*. McGraw-Hill: 6th edition, book or ebook. 2) Recommended, but not required: Connect subscription that includes Smartbook. Both will be available through the BU Bookstore and other sources.

Grading: 80% avg. of four exam scores given during the semester. 20% discussion.

CELL & MOLECULAR

CAS BI 385: IMMUNOLOGY

Prereq: CAS BI 203, CAS BI 206 and junior standing

The constituents and regulation of mammalian immune systems are described at the levels of the gene, protein, and cell. Topics include nonspecific, T cell and B cell recognition and responses, genetics of immune receptors, inflammation, tolerance, memory, and evolution and manipulation of defense systems. Three hours lecture, one hour discussion.

Lecture

A1 Siggers Mon,Wed,Fri 1:25pm - 2:15pm

Discussion

B1	Tue	8:00am - 8:50am	F1	Tue	8:00am - 8:50am
C1	Wed	12:20pm - 1:10pm	G1	Wed	11:15am - 12:05pm
D1	Thu	8:00am - 8:50am	H1	Wed	12:20pm - 1:10pm
E1	Fri	2:30pm - 3:20pm	I1	Fri	3:35pm - 4:25pm

Textbooks & Technology: Peter Parham. *The Immune System*. 4th Edition. Garland Science Publishing, NY, NY; TopHat Account.

Grading: 3 exams (2 midterms and 1 final) 80%; discussion/participation 20%.

CAS BI 411: MICROBIOME: OUR INTIMATE RELATIONSHIP WITH MICROORGANISMS

Prereq: CAS BI 203 (or equivalent) and CAS BI 206 (or equivalent) or consent of instructor

There are more bacterial cells inhabiting our bodies than actual human cells. This abundant and diverse population of microbes – referred to as the “microbiome” – colonizes several tissues in our body and plays important roles in maintaining our health. Topics will include the evolutionary, ecological, cellular, molecular and medical aspects of the interactions between animals and the bacterial communities that have evolved with them. Three hours lecture; one hour discussion.

Lecture and Discussion

A1 Frydman Tue,Thu 3:30pm - 4:45pm
Thu 5:00pm - 5:50pm

Notes: Meets with GRS BI 611.

Textbooks & Technology: Scientific papers will be made available to the students throughout the course via Blackboard.

Grading: Midterm 30%; Oral Presentation and Discussion 20%; Final Exam 40%; Participation 10%.

CAS BI 422: BIOCHEMISTRY 2

Prereq: CAS BI 421 or CAS CH 421 or equivalent

Cell metabolism, with special emphasis on the uptake of food materials, the integration and regulation of catabolic, anabolic, and anaplerotic routes, and the generation and utilization of energy. Lectures include consideration of events in prokaryotic and eukaryotic organisms.

Lecture

A1 Kornberg Mon,Wed,Fri 9:05am - 9:55am

Lab & Discussion

B1	Mon	12:20pm - 4:20pm	Lab
B2	Mon	5:30pm - 9:30pm	Lab
B3	Wed	2:30pm - 6:30pm	Lab
B4	Thu	5:30pm - 9:30pm	Lab
B5	Fri	12:20pm - 4:20pm	Lab
B6	Fri	5:30pm - 9:30pm	Lab
C1	Fri	10:10am - 11:00am	Discussion
C2	Fri	11:15am - 12:05pm	Discussion
C3	Wed	12:20pm - 1:10pm	Discussion

Notes: Meets with CAS CH 422 A1, GRS BI/CH 622 A1 and MET CH 422.

Textbooks & Technology: 1) Lehninger: *Principles of Biochemistry* Seventh Edition. David L. Nelson & Michael M. Cox. W.H. Freeman & Company (2007). 2) *The Absolute, Ultimate Guide to Principles of Biochemistry Study Guide and Solutions Manual* Seventh Edition. David L. Nelson & Michael M. Cox. W.H. Freeman & Company (2017).

Grading: Hour exams, lab, final.

CAS BI 481: MOLECULAR BIOLOGY OF THE NEURON

Prereq: BI 325 (preferred) or BI 203.

Topics include electrical properties of neurons, a survey of neurotransmitters, molecular structure and function of receptors, synaptic transmission, intracellular signaling, and the molecular biology of sensory transduction.

Independent

A1 Ho Mon,Wed 2:30pm - 4:15pm

Notes: Meets with CAS NE 481 and GRS BI 681.

Textbooks & Technology: none

Grading: 2 midterms, 1 final exam, and discussion.

CELL & MOLECULAR

CAS BB 522: MOLECULAR BIOLOGY LAB

Prereq: CAS BI 552

Introduction to techniques of cellular and molecular biology research, including analysis of DNA and protein molecules, by techniques such as plasmid isolation, restriction enzyme digestions, PCR, subcloning, DNA sequence analysis, reporter gene assays, mammalian cell culturing, immunofluorescence, yeast molecular biology, RNA isolation and quantification, RT-qPCR analysis and introduction to RNA-seq bioinformatic analysis.

Lab

A1 Gilmore, Cheng Tue,Thu 1:00pm - 4:45pm

Notes: Permission required.

Textbooks & Technology: Xeroxed lab note packet.

Grading: Midterm (20%); final (20%); lab reports (35%); lab participation and preparation (25%).

CAS BI 528: BIOCHEMISTRY LABORATORY 2

Prereq: BI 421 or BI 527

[2 cr] Not for Biology major or minor credit unless both BI 527 and BI 528 are taken. Emphasizes protein, carbohydrate, nucleic acid, and lipid chemistry. Development and use of modern instrumentation and techniques. Same as CAS CH 528 and laboratory portion of CAS BI/CH 422. Required for BMB students enrolled concurrently in GMS BI 555.

Lecture

A1 Medrano Fri 10:10am - 11:00am

A2 Medrano Fri 11:15am - 12:05pm

A3 Medrano Wed 12:20pm - 1:10pm

Lab

B1 Mon 12:20pm - 4:20pm B4 Thu 5:30pm - 9:30pm

B2 Mon 5:30pm - 9:30pm B5 Fri 12:20pm - 4:20pm

B3 Wed 2:30pm - 6:30pm B6 Fri 5:30pm - 9:30pm

Notes: Meets with CAS CH 422, CAS BI 422, CAS CH 528, GRS CH 622 and GRS BI 622. Not for Biology major or minor credit unless both BI 527 and BI 528 are taken.

Textbooks & Technology: 1) Lehninger: *Principles of Biochemistry* Seventh Edition. David L. Nelson & Michael M. Cox. W.H. Freeman & Company (2007). 2) *The Absolute, Ultimate Guide to Principles of Biochemistry Study Guide and Solutions Manual* Seventh Edition. David L. Nelson & Michael M. Cox. W.H. Freeman & Company (2017).

Grading: Lab preparation, lab reports, final exam.

CAS BI 553: MOLECULAR BIOLOGY 2

Prereq: CAS BI 552, recommended: BI/CH 421/422

This course focuses on gene regulatory mechanisms with emphasis on eukaryotes, and current research in molecular biology. General areas of focus include genomics, gene regulation, and cell signaling. Course topics include genome organization and DNA rearrangement, RNA interference and noncoding RNAs, gene editing, mouse transgenic approaches, signal transduction pathways, chromatin structure, and cell cycle. Research articles and molecular biology approaches will be discussed.

Independent

A1 Naya Tue,Thu 9:00am - 10:45am

Textbooks & Technology: none.

Grading: Two exams, discussion participation, project.

CAS BI 565: FUNCTIONAL GENOMICS

Prereq: CAS BI 552 or consent from instructor.

Recent years have seen an explosion in the number of organisms for which sequenced genomes are available. However, we are only beginning to understand how the information encoded in the million/billion DNA bases of eukaryotic genomes is organized and how that information is translated into function. Throughout this course, we will start to answer central questions in the molecular biology and functional genomics fields, including: Given that only ~2% of the genome encodes for proteins, what is the function of the rest of the genome? How is it possible that yeast, worms and humans have a similar number of genes? What is the flow of information in the cell that controls gene function and activity? Which experimental approaches allow us to tackle these questions?

Independent

F1 Fuxman Bass Wed, Fri 10:10am - 11:55am

Textbooks & Technology: Review articles and research papers on Blackboard.

Grading: Exam I: 25 %, Exam II: 30 %, Project: 15 %, Assignments: 9%, Participation: 8%, Paper presentation: 8%, Quizzes: 5%.

CELL & MOLECULAR

CAS BI 576: CARCINOGENESIS

Prereq: BI 203, BI 206, BI 552

The course covers multiple aspects of cancer biology with a focus on molecular mechanisms underlying cancer development and progression, and the implications for therapy. Topics include oncogenes, tumor suppressors, apoptosis, angiogenesis, metastasis, mouse models, cancer immunity, immunotherapy, and chemotherapy. Emphasis on current research.

Lecture

A1	Gilmore, Tullai	Mon	2:30pm - 4:15pm
		Wed	2:30pm - 3:20pm

Discussion

B1	Wed	3:35pm - 4:25pm
B2	Wed	4:40pm - 5:30pm
B3	Thu	3:35pm - 4:25pm

Notes: No credit if CAS BI 327 or GMS BT 520 were taken previously.

Textbooks & Technology: Weinberg (2013). *The Biology of Cancer*. Garland Science.

Grading: Three exams, presentation, participation.

CAS BI 582: SEMINAR IN BIOLOGY: RESEARCH TOPICS IN FUNCTIONAL GENOMICS AND PROTEOMICS

Prereq: BI 421 or BI 560 or BI 565 or consent of instructor

[2 cr] Not for Biology major or minor credit unless two sections of BI 581/582 are taken. This course will introduce experimental and computational strategies as pertains to the generation and analysis of large-scale proteomic and genomic data sets, including practical and project specific aspects (data formats, methods, public resources). Typical project goals and individual cases will be examined in detail in presentations by select faculty. Data types to be discussed may include expression data, molecular interaction, graphical network models, mass spectrometry, and structural biology. A session may also be devoted to methods for combining and leveraging among multiple data types.

Independent

E1	Emili	Fri	10:10am - 11:55am
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Notes: Not for Biology major or minor credit unless two sections of BI 581/582 are taken.

Textbooks & Technology: PDFs of relevant publications will be provided along with website URLs to access relevant public databases.

Grading: Research project sketch (25 %), project sketch reviews (25 %), project sketch review rebuttals and revised proposal (25 %), class participation/attendance (25%).

Additional electives for the CMG specialization can be found in these sections:

Ecology, Behavior & Evolution (pgs. 9-13)
Physiology & Neurobiology (pgs. 14-16)
Metropolitan College (MET) (pgs. 17-18)
Research & Readings (pgs. 19-20)

A list of courses accepted toward the CMG specialization can be found in the Bulletin at www.bu.edu/biology/cm-g-bulletin.

ECOLOGY, BEHAVIOR & EVOLUTION

CAS BI 260: MARINE BIOLOGY

Prereq: CAS BI 107 or consent of instructor.

Life in the seas: its ecology, evolution, and human impacts. Includes behavioral, physiological, structural, ecological, and evolutionary perspectives. A prerequisite for the Marine Semester.

Lecture

A1 Rotjan Mon,Wed,Fri 9:05am - 9:55am

Discussion

B1	Wed	10:10am - 11:00am	C3	Tue	3:35pm - 4:25pm
B2	Wed	4:40pm - 5:30pm	E1	Thu	11:15am - 12:05pm
C1	Thu	3:35pm - 4:25pm	F1	Fri	11:15am - 12:05pm
C2	Tue	11:15am - 12:05pm	F2	Fri	10:10am - 11:00am

Textbooks & Technology: Castro & Huber. *Marine Biology*. 9th Edition

Grading: Three exams, discussion, and participation.

CAS BI 302: VERTEBRATE ZOOLOGY

Prereq: CAS BI 107

Methods and principles of comparative vertebrate zoology. Phylogeny, natural history, adaptation, and taxonomy. Laboratory emphasis on correlation among structural, physiological, and evolutionary features of selected vertebrates by both dissection and experimentation. Field trips.

Lecture

A1 Wasserman Tue,Thu 11:00am - 12:15pm

Lab

B1 Tue,Thu 8:00am - 10:45am
B2 Tue,Thu 12:30pm - 3:15pm

Textbooks & Technology: Pough, et al. *Vertebrate Life*. 9th edition

Grading: Three exams, lab quizzes and participation.

CAS BI 303: ECOLOGY

Prereq: CAS BI 107 recommended: CAS BI 206, MA 121/123

Investigation of ecological processes and patterns at the individual, population, and community level. An evolutionary approach is emphasized. One day-long field trip required.

Lecture

A1 Rotjan Mon,Wed,Fri 11:15am - 12:05pm

Lab

B1 Mon 2:30pm - 5:15pm
C1 Tue 3:30pm - 6:15pm
D1 Thu 12:30pm - 3:15pm
F1 Fri 2:30pm - 5:15pm

Textbooks & Technology: Molles. *Ecology*. 6th Edition

Grading: Two exams, a final exam, lab, 3-minute video assignment, and participation.

CAS BI 306: BIOLOGY OF GLOBAL CHANGE

Prereq: CAS BI 107, Recommended: CAS CH 101 or CH 171

The ecological impacts of human activity on the Earth's climate and terrestrial and aquatic ecosystems. Climate change, productivity and land-atmosphere feedbacks.

Lecture

A1 Finzi Mon,Wed,Fri 10:10am - 11:00am

Lab

C1 Tue 12:30pm - 3:15pm E1 Thu 3:30pm - 6:15pm
D1 Wed 2:30pm - 5:15pm

Textbooks & Technology: There is no required textbook for this course. Readings will be assigned from the scientific literature and will be available through Blackboard.

Grading: Two exams (20%), final exam (30%), lab and participation (30%).

ECOLOGY, BEHAVIOR & EVOLUTION

CAS BI 307: BIOGEOGRAPHY

Prereq: GE 101 and BI 107

Examines the spatial distribution of plants and animals from historical, ecological, and analytical perspectives. Environmental and human influences on species distribution, abundance, and diversity are considered, as are changes resulting from past and projected climate change

Independent

A1 Staff Tue 3:30pm - 6:15pm

Notes: Meets with GE 307.

Textbooks & Technology: TBA.

Grading: TBA.

CAS BI 413: MICROBIAL ECOLOGY

Prereq: BI 107 & BI 108 and CH 101 & CH 102

Microbes (bacteria, archaea, and fungi) are the most diverse and abundant living organisms on the planet and microbial communities are key contributors to ecosystems and their functioning. This course studies how microbes interact with each other and with the environment. Topics will include microbial cell structure and physiology, microbe-microbe interactions including biofilm formation and quorum sensing, and microbe-environment interactions including microbiomes and geochemical cycling.

Lecture and Discussion

A1 Angell Tue, Thu 3:30pm - 4:45pm
Fri 3:35pm - 4:25pm

Notes: Meets with GRS BI 613.

Textbooks & Technology: *Processes in Microbial Ecology* (2nd Edition), David L. Kirchman, ISBN: 978-0198789413

Grading: Two exams (15%), final paper (25%), homework (15%), discussion participation and presentation (30%).

CAS BI 414: ORNITHOLOGY

Prereq: BI 107

Examines the behavior, ecology and morphology, physiology, classification, and evolution of birds. Flight, navigation, migration, territorial courtship, nesting, and parental behavior. Field trips. Three hours lecture, one hour discussion and demonstrations.

Independent

A1 Wasserman Tue, Thu 2:00pm - 3:15pm

Notes: Meets with GRS BI 614.

Textbooks & Technology: none

Grading: 3 exams (each worth 1/3 of the grade).

CAS BI 423: MARINE BIOGEOCHEMISTRY

Prereq: CAS ES 144 and (CH 102 or Marine Semester).

Oceanic nutrient and biogeochemical cycling in the context of the marine response to global change. Links between local and global scales are emphasized. Topics include oceanic productivity, iron limitation, oceanic glacial carbon dioxide budget, biogenic particle fluxes, oceanic glacial-interglacial biogeochemistry.

Independent

A1 Fulweiler Tue, Thu 12:30pm - 1:45pm

Notes: Meets with GRS BI 623 and ES 423/623.

Textbooks & Technology: All readings will come from the primary literature and will be posted on Blackboard Learn.

Grading: Exams, class presentations, and participation in weekly literature journals and discussions.

ECOLOGY, BEHAVIOR & EVOLUTION

CAS BI 475: URBAN ECOLOGY

Prereq: (GE 100 or GE 101) and one of the following: CAS BI 306, CAS BI 443, CAS GE 456, or CAS BI 530; or consent of instructor.

The biophysical environments and ecology of urban settlements. Key topics include the physical environment, patterns in human population growth and development, ecosystem structure and function, global change, urban environment pollution and management, and sustainable urban development.

Independent

A1 Hutyra Wed 2:30pm - 5:15pm

Notes: Meets with CAS GE 475 and GRS BI/GE 675.

Textbooks & Technology: TBA

Grading: TBA

CAS BI 504: ADVANCED EVOLUTIONARY ANALYSIS

Prereq: CAS BI 309 or consent of instructor

Modern concepts, controversies, and analytical approaches in evolutionary biology. Topics include adaptation, natural and sexual selection, species and species formation, phylogenetics, origin of evolutionary novelty, adaptive radiation, basic population and quantitative genetics, development and evolution. Three hours lecture, one hour discussion.

Lecture and Discussion

A1 Mullen Mon, Wed, Fri 1:25pm - 2:15pm
Mon 2:30pm - 3:20pm

Textbooks & Technology: Readings will be available through Blackboard.

Grading: Midterm Exams (50%); Discussion (25%); Paper (25%)

CAS BI 506: PHENOTYPIC PLASTICITY

Prereq: CAS BI 107 and one of the following: BI 303, BI 309, BI 315, or BI 410; or consent of instructor.

Explores the flexible phenotype as a product of development and target of natural selection, and addresses the role of plasticity in ecological interactions and evolutionary diversity. Topics: plasticity genetics, evolution, developmental mechanisms, functional ecology, learning, and diversification of life. Three hours lecture, one hour discussion.

Lecture

A1 Warkentin Mon, Wed, Fri 9:05am - 9:55am

Discussion

B1 Wed 10:10am - 11:00am

B2 Wed 11:15am - 12:05pm

Textbooks & Technology: Gibert & Epel, *Ecological Developmental Biology* (2nd edition 2015), West-Eberhard *Developmental Plasticity and Evolution*, 2003, Papers from the scientific literature and chapters from other books posted on the course website.

Grading: Midterm and final exam, multi-stage project, participation.

CAS BI 530: FOREST ECOLOGY

Prereq: CAS BI 107 and (CAS BI 303 or CAS BI 306); or consent of instructor

The major biotic and abiotic factors influencing forest ecosystem composition, structure, and function. Role of solar radiation, hydrology, soils, succession, and management of forest ecosystems. Includes New England case study.

Lecture and Discussion

A1 Templer Tue, Thu 11:00am - 12:15pm
Fri 10:10am - 11:00am

Notes: Meets with GE 530.

Textbooks & Technology: DA Perry, R Oren and SC Hart, *Forest Ecosystems*. 2008, Johns Hopkins University Press.

Grading: Two exams (40%), Class assignments (55%), Class participation (5%)

ECOLOGY, BEHAVIOR & EVOLUTION

CAS BI 542: NEUROETHOLOGY

Prereq: CAS BI 315 or CAS NE 203, or consent of instructor.

An in-depth study of the neural mechanisms underlying natural behaviors in animals, integrating perspectives from behavioral ecology and neurobiology. Behaviors that are central to fitness will be studied in detail, including the sensory and motor bases of prey detection, predator avoidance, communication, courtship, navigation, and migration. A wide variety of non-model organisms such as honey bees, owls, bats, and crickets will be discussed. Lectures are integrated with student-led discussions of relevant research papers.

Independent

A1 Muscedere Tue,Thu 9:00am - 10:45am

Notes: Meets with CAS NE 542.

Textbooks & Technology: Guenther Zupanc, *Behavioral Neurobiology: An Integrative Approach*, 2nd Edition 2010, Oxford University Press, Oxford, New York.

Grading: Exams, class presentations, and participation in daily literature discussions.

CAS BI 582: SEMINAR IN BIOLOGY: COMMUNITY ECOLOGY

Prereq: BI 107 and senior standing (or consent of instructor). Some background in ecology and/or evolution recommended.

[2 cr] Not for Biology major or minor credit unless two sections of BI 581/582 are taken. The objective of this course is to introduce students to concepts in Community Ecology, including patterns and mechanisms of community assembly, models of species interaction, and causes and consequences of diversity. The course is a seminar-style course in which students learn and teach concepts in community ecology in a self-directed way. A major objective of the course will be to prepare a synthetic term paper on a topic in community ecology, to which all students will contribute a section.

Independent

B1 Bhatnagar Fri 12:20pm - 2:05pm

Notes: Not for Biology major or minor credit unless two sections of BI 581/582 are taken.

Textbooks & Technology: none

Grading: attendance 15%; presentation and participation 15%; content and clarity of presentation 35%; term paper written and revised 35%.

CAS BI 582: SEMINAR IN BIOLOGY: PLANT ECOLOGY AND IDENTIFICATION

Prereq: BI 303 or BI 306 (or equivalent)

[2 cr] Not for Biology major or minor credit unless two sections of BI 581/582 are taken. This course will cover topics in plant ecology, including plant population biology, plant community ecology, and plant succession. The course will include topics in plant reproductive biology, such as pollination ecology and seed dispersal ecology, and plant-animal interactions, such as plant defenses against herbivory and plant interactions with birds and mammals. The ecological roles of different plant groups, such as mosses, ferns, flowering plants, and gymnosperms, will be included. The course will teach the skills need to identify the common trees, shrubs, and wildflowers found in New England habitats, and include the use of on-line identification resources, such as Go Botany and iNaturalist.

Independent

P1 Primack Tue 9:00am - 10:45am

Notes: Not for Biology major or minor credit unless two sections of BI 581/582 are taken.

Textbooks & Technology: Course readings will be from *The Ecology of Plants*, Second Edition, by Jessica Gurevitch; research papers from the current literature; *Newcomb's Wildflower Guide*; and on-line guides for plant identification, including Go Botany and iNaturalist.

Grading: Grading will be based on class participation, class presentations, course papers, and quizzes on plant identification.

ECOLOGY, BEHAVIOR & EVOLUTION

CAS BI 594: TOPICS IN BIOLOGY: ECOLOGICAL AND EVOLUTIONARY GENOMICS

Prereq: BI 206 and (MA 115 or MA 213); recommended: BI 309 an BI 303; or consent of instructor

The onset of next generation sequencing technologies has changed the way we address questions in ecology and evolution. Ecological and evolutionary genomics is a relatively new and powerful field that capitalizes on these advancements and aims to address ecological and evolutionary questions through a genomic lens. This course will teach a panel of genomics methods that have been developed specifically for addressing these sorts of long-standing questions in non-model organisms. This course will navigate students through topics related to community ecology, population biology and organismal physiology and lectures and readings will be integrated with genomic analyses and statistics. The majority of the genomic problems tackled in the class will be using marine invertebrates, however these tools are universal across microbes, fungi, plant and animals, and many will be applicable to your own species of interest. This course is intended for those interested in embarking on genomics within an ecological or evolutionary setting and teaches the fundamentals of the discipline, while concentrating on the skills required to address these questions.

Independent

D1 Davies Tue, Thu 9:00am - 10:45am

Textbooks & Technology: Electronic hand-outs will be distributed throughout the course

Grading: Bioinformatic labs: 45%, literature discussion: 25%, final research project: 30%

CAS BI 594: TOPICS IN BIOLOGY: METAPOPOPULATION ECOLOGY

Prereq: BI 107 and one of the following: BI 225, BI 260, BI 303, BI 306, or BI 309

The principal objective of this course is to introduce students to Metapopulation Ecology, through the lens of propagule dispersal and population connectivity. Each week, students will dive deeply into one topic, considering terrestrial ecology, marine ecology and theoretical ecology perspectives (see schedule below). Each week, a variety of approaches to learning will be used: first, the students will read six papers from the primary literature; second, I will provide a lecture summarizing the papers; third, there will be a small group discussions of the papers; fourth, the students will explain to others what they have learned using a variety of mediums (e.g., three minute lightning talk, one page press release, or Wikipedia page update).

Independent

B1	Buston	Mon, Wed, Fri	11:15am - 12:05pm
		Mon	3:35pm - 4:25pm

Textbooks & Technology: All readings will come from the primary literature and will be posted on Blackboard Learn.

Grading: lecture series 11%, discussion series 22%, teaching series 33%, term paper 33%

Additional electives for the ECB specialization can be found in these sections:

Cell & Molecular (pgs. 4-8)
Metropolitan College (MET) (pgs. 17-18)
Research & Readings (pgs. 19-20)

A list of courses accepted toward the ECB specialization can be found in the Bulletin at www.bu.edu/biology/ecb-bulletin.

Additional electives for the SBB specialization can be found in these sections:

Physiology & Neurobiology (pgs. 14-16)
Research & Readings (pgs. 19-20)

A list of courses accepted toward the SBB specialization can be found in the Bulletin at www.bu.edu/biology/sbb-bulletin.

PHYSIOLOGY & NEUROBIOLOGY

CAS BI 210: HUMAN ANATOMY

Prereq: CAS BI 105 or equivalent

Not for Biology major or minor credit. Intensive pre-professional course for students whose programs require anatomy. Gross structure of the human body; skeletal, muscular, nervous, respiratory, circulatory, digestive, urinary, and reproductive systems. Lab requires dissection. Carries natural science divisional credit (with lab) in CAS.

Lecture

A1 Co Mon,Wed,Fri 11:15am - 12:05pm

Lab

B1	Mon	12:20pm - 2:05pm	E1	Thu	9:00am - 10:45am
B2	Mon	2:30pm - 4:15pm	E2	Thu	1:30pm - 3:15pm
C1	Tue	9:00am - 10:45am	E3	Thu	3:30pm - 5:15pm
C2	Tue	1:30pm - 3:15pm	F1	Fri	12:20pm - 2:05pm
C3	Tue	3:30pm - 5:15pm	F2	Fri	2:30pm - 4:15pm
D1	Wed	9:00am - 10:45am			
D2	Wed	12:20pm - 2:05pm			
D3	Wed	2:30pm - 4:15pm			

Notes: Not for Biology major or minor credit.

Textbooks & Technology: *Human Anatomy* - Marieb, TopHat Account, ExamSoft Account.

Grading: 3 midterm lecture exams; 1 cumulative lecture final; 2 laboratory practical exams.

CAS BI 230: BEHAVIORAL ENDOCRINOLOGY

Prereq: (BI 108 or NE 102) and sophomore standing.

Hormonal control of reproductive and parental behaviors, social affiliation, aggression, fluid homeostasis, biological rhythms including seasonal reproduction, stress, learning and memory, affective disorders and steroid abuse.

Lecture and Discussion

A1 DiBenedictis Mon, Wed, Fri 2:30pm - 3:20pm
Fri 1:25pm - 2:15pm

Notes: Meets with NE 230.

Textbooks & Technology: R.J. Nelson. *Introduction to Behavioral Endocrinology*, 5th ed. Sinauer, 2017.

Grading: Two midterms (20% each), a final exam (30%), discussion presentation and participation (20%), quizzes (10%).

CAS BI 315: SYSTEMS PHYSIOLOGY

Prereq: (CAS BI 108 or ENG BE 209) and CAS CH 102 or equivalent.

An introduction to physiological principles applied across all levels of organization (cell, tissue, organ system). Preparation for more advanced courses in physiology. Topics include homeostasis and neural, muscle, respiratory, cardiovascular, renal, endocrine, gastrointestinal, and metabolic physiology.

Lecture

A1 Muscedere Tue,Thu 11:00am - 12:15pm
A2 Muscedere Tue,Thu 2:00pm - 3:15pm

Lab

B1	Mon	2:30pm - 5:15pm	D3	Wed	2:30pm - 5:15pm
B2	Mon	6:30pm - 9:15pm	D4	Wed	6:30pm - 9:15pm
C1	Tue	8:00am - 10:45am	E1	Thu	8:00am - 10:45am
C2	Tue	12:30pm - 3:15pm	E2	Thu	12:30pm - 3:15pm
C3	Mon	2:30pm - 5:15pm	E3	Thu	6:30pm - 9:15pm
C4	Tue	6:30pm - 9:15pm	E4	Thu	6:30pm - 9:15pm
C5	Tue	6:30pm - 9:15pm	E5	Mon	6:30pm - 9:15pm
D1	Wed	8:00am - 10:45am	F1	Fri	8:00am - 10:45am
D2	Wed	2:30pm - 5:15pm			

Textbooks & Technology: 1) Vander's. *Human Physiology: The Mechanisms of Body Function*. 14th edition 2) Lab manual by Sanxaridis Mantis et al; TopHat Account; ExamSoft Account.

Grading: Three lecture exams, lecture assignments and homework, final exam, lab quizzes and write ups, cumulative lab final.

CAS BI 325: PRINCIPLES OF NEUROSCIENCE

Prereq: CAS BI 203 or consent of instructor.

Fundamentals of the nervous system, emphasizing synaptic transmission; hierarchical organization; autonomic nervous system; mechanisms of sensory perception; reflexes and motor function; biorhythms; and neural mechanisms of feeding, mating, learning, and memory.

Lecture

A1 Cruz-Martin Tue,Thu 2:00pm - 3:15pm

Discussion

B1 Mon 2:30pm - 3:20pm
B2 Wed 3:35pm - 4:25pm
B3 Thu 3:35pm - 4:25pm

Textbooks & Technology: Bear, et al. *Neuroscience: Exploring the Brain*. 4th Ed. Wolters Kluwer.

Grading: Two midterms and a final exam.

PHYSIOLOGY & NEUROBIOLOGY

CAS BI 394: TOPICS IN BIOLOGY: NEUROTOXINS IN BIOLOGY, MEDICINE, AGRICULTURE AND WAR

Prereq: BI108 or equivalent

In this course, we will use neurotoxins as a lens through which to learn neurobiology and physiology. Since most neurotoxins target synapses or ion channels, we will discuss the basic principles related to key steps of synaptic transmission and action potential generation. In the area of biology, we will discuss the toxin components of some venomous animals and discuss how these components are tailored to their specific hunting style. In medicine, we will seek to understand how the actions of certain neurotoxins have led to applications such as pain management or prevention of excitotoxicity. In the field of agriculture, we will study how the majority of pesticides are neurotoxins. Lastly, we will examine how neurotoxins have a long history of use as a tool to gain power during war times.

Independent

A1 Lin Tue,Thu 3:30pm - 5:15pm

Textbooks & Technology: *Neuroscience*, 4th or 5th ed; Purves, et al. or *Neuroscience: Exploring the Brain*. Bear, Connors and Paradiso 4th ed

Grading: 1 midterm (30%), 1 final (40%), discussion/presentation (30%)

CAS BI 449: NEUROSCIENCE DESIGN LAB

Prereq: (BI 315 OR BI 325 OR NE 203) or consent of instructor.

Design and build devices for neuroscience experiments. Interface sensors with computers using Arduino microprocessors. Guided exercises followed by independent design projects to quantify human sensory and motor performance, or emulate animal sensory-motor circuits. All levels of programming experience accepted.

Lab

A1 Gavornik Tue,Thu 12:30pm- 3:15pm

Notes: Meets with CAS NE 449 and GRS BI/NE 649.

Textbooks & Technology: Purchase of an Arduino kit.

Grading: Lab notebook, project and participation.

CAS BI 481: MOLECULAR BIOLOGY OF THE NEURON

Prereq: BI 325 (preferred) or BI 203.

Topics include electrical properties of neurons, a survey of neurotransmitters, molecular structure and function of receptors, synaptic transmission, intracellular signaling, and the molecular biology of sensory transduction.

Independent

A1 Ho Mon, Wed 2:30pm - 4:15pm

Notes: Meets with CAS NE 481 and GRS BI 681.

Textbooks & Technology: none

Grading: 2 midterms, 1 final exam, and discussion.

CAS BI 525: BIOLOGY OF NEURODEGENERATIVE DISEASES

Prereq: (CAS NE 102 or CAS BI 203) and (CAS NE 203 or CAS BI 325).

This course focuses on understanding the molecular mechanisms that are at the basis of neurodegenerative diseases and on their impact and relevance in clinical diagnosis and treatment. Neurodegenerative diseases like Alzheimer's disease, Parkinson's disease, Amyotrophic Lateral Sclerosis, Huntington's Disease and Cruetzfeldt-Jakob disease are becoming more and more common since people are more exposed to pathogenic agents (as in Cruetzfeldt-Jakob disease and Mad Cow disease) or just encounter these diseases as a result of aging (like Alzheimer's or Parkinson's disease). Although very different from one another, these diseases share common mechanisms and features leading to neuronal death, including protein misfolding and aggregation, oxidative stress, impaired protein degradation, and apoptosis. This course will study how these molecular pathways define each disease, contributing to neurodegenerative phenomena. Relevance will be given to Alzheimer's disease.

Independent

A1 Pastorino Mon, Wed, Fri 9:05am - 9:55am
Wed 10:10am - 11:00am

Notes: Meets with CAS NE 525.

Textbooks & Technology: Powerpoint presentations on research articles will be provided to students the day before class.

Grading: Exams (66%), assignments (13%), paper presentation (13%), and participation in class (8%).

PHYSIOLOGY & NEUROBIOLOGY

CAS BI 542: NEUROETHOLOGY

Prereq: CAS BI 315 or CAS NE 203, or consent of instructor.

An in-depth study of the neural mechanisms underlying natural behaviors in animals, integrating perspectives from behavioral ecology and neurobiology. Behaviors that are central to fitness will be studied in detail, including the sensory and motor bases of prey detection, predator avoidance, communication, courtship, navigation, and migration. A wide variety of non-model organisms such as honey bees, owls, bats, and crickets will be discussed. Lectures are integrated with student-led discussions of relevant research papers.

Independent

A1 Muscedere Tue,Thu 9:00am - 10:45am

Notes: Also offered as CAS NE 542.

Textbooks & Technology: Guenther Zupanc, *Behavioral Neurobiology: An Integrative Approach*, 2nd Edition 2010, Oxford University Press, Oxford, New York

Grading: Exams, class presentations, and participation in daily literature discussions.

Additional electives for the Neurobiology specialization can be found in these sections:

Cell & Molecular (pgs. 4-8)
Ecology, Behavior & Evolution (pgs. 9-13)
Metropolitan College (MET) (pgs. 17-18)
Research & Readings (pgs. 19-20)

A list of courses accepted toward the Neurobiology specialization can be found in the Bulletin at www.bu.edu/biology/nb-bulletin.

METROPOLITAN COLLEGE (MET)

Metropolitan College (MET) offers evening versions of several biology courses, often taught by Biology Department faculty. The MET courses listed here count toward a student's major the same way the corresponding CAS courses do (although MET courses don't earn Hub units). If a student wishes to take more than one MET course a semester or is a freshman or sophomore, it is first necessary to get approval by filling out the Petition to Take Course at Metropolitan College form at www.bu.edu/biology/met-petition.

MET BI 108: BIOLOGY 2

Prereq: One year of high school biology and chemistry strongly recommended.

Coreq: CH 101 and CH 102 recommended as prereqs or coreqs.

For pre-med students and students who plan to major in the natural sciences. Required for Biology majors. Course examines cells, genetics, development, physiology, and neurobiology.

Lecture

B1 Tullai Tue 6:00pm - 8:45pm

Lab

C1 Spilios Wed 6:00pm - 8:45pm

MET BI 206: GENETICS

Prereq: BI 108 or equivalent; CH 203 recommended.

Principles of heredity as derived from genetic, biochemical, and cytological evidence in animals, plants, and microorganisms. For BMB majors and Biology majors in the CMG track, BI 216 is highly recommended instead of BI 206.

Lecture and Discussion

B1 Celenza Tue, Thu 6:00pm - 7:30pm
Tue 7:30pm - 8:30pm

MET BI 210: HUMAN ANATOMY

Prereq: BI 105

Not for Biology or BMB major/minor credit. Gross structure of the human body: skeletal, muscular, nervous, respiratory, circulatory, digestive, urinary, and reproductive systems. Laboratory course.

Lecture

C1 Kieswetter Wed 6:00pm - 8:45pm

Lab

D1 Taylor Thu 6:00pm - 8:45pm

Notes: Not for Biology or BMB major credit.

MET BI 303: ECOLOGY

Prereq: BI 107

Basic principles of ecology, population dynamics and behavior, interrelationships of plants and animals and their physical and chemical environment. Structure and function of ecosystems and community dynamics. Laboratory course.

Lecture

A1 Wasserman Mon 6:00pm - 8:45pm

Lab

C1 Wasserman Wed 6:00pm - 8:45pm

MET BI 315: SYSTEMS PHYSIOLOGY

Prereq: BI 108 & BI 203

An introduction to the basic physiological principles applied across all levels of organization (cell, tissue, organ system) and intended to prepare the student for more advanced courses in physiology. Topics include homeostasis, neural, muscle, cardiopulmonary, renal, endocrine, and reproductive physiology.

Lecture

D1 Vyshedskiy Thu 6:00pm - 8:45pm

Lab

C1 Vyshedskiy Wed 6:00pm - 8:45pm

Notes: Permission required for non-MET students.

METROPOLITAN COLLEGE (MET)

MET CH 422: BIOCHEMISTRY 2

Prereq: BI/CH 421 or equivalent.

Polysaccharides, energy storage and recognition; intermediary metabolism; lipid and isoprene metabolism; nitrogen metabolism; nucleotide metabolism, macromolecular biosynthesis with emphasis on specificity and fidelity in the mechanisms of RNA, DNA, and protein synthesis. Three hours lecture, one hour discussion, four hours lab.

Lecture

A1 Kornberg Mon, Wed, Fri 9:05am - 9:55am

Lab

B2 Mon 5:30pm - 9:30pm

B4 Thu 5:30pm - 9:30pm

B6 Fri 5:30pm - 9:30pm

Discussion

C1 Fri 10:10am - 11:00am

C2 Fri 11:15am - 12:05pm

C3 Wed 12:20pm - 1:10pm

Notes: Meets with CAS BI 422.

MET BI 566: NEUROBIOLOGY OF CONSCIOUSNESS AND EVOLUTION OF LANGUAGE

Prereq: BI 108 or equivalent.

In this class we will dive into the neuroscience of imagination: from neurons to memory to neurological control of novel conscious experiences. We will study what makes your brain unique and the selectional forces that shaped the brains of our ancestors. We will discuss what makes human language special and how it evolved.

Independent

C1 Vyshedskiy Wed 6:00pm - 8:45pm

RESEARCH & READINGS

UNDERGRADUATE RESEARCH IN BIOLOGY

Undergraduate Research in Biology courses (CAS BI 191 - CAS BI 491) require an online application. For more information on research requirements and to apply, visit www.bu.edu/biology/ug-research. Time commitment is a minimum of 6 hours a week for 2-credit research and 12 hours a week for 4-credit research.

CAS BI 192: UNDERGRADUATE RESEARCH IN BIOLOGY 1

Prereq: freshman standing, consent of instructor (faculty research mentor/sponsor), and approved application.

[2 cr] Not for biology major or minor credit. Laboratory research or field work under the supervision of a Biology faculty mentor. Research outside of the Biology Department is acceptable if approved and overseen by a Biology faculty sponsor.

Grading: Course grade is determined by laboratory/field work performance.

CAS BI 292: UNDERGRADUATE RESEARCH IN BIOLOGY 2

Prereq: sophomore standing, consent of instructor (faculty research mentor/sponsor), and approved application.

[2 cr] Not for biology major or minor credit. Laboratory research or field work under the supervision of a Biology faculty mentor. Research outside of the Biology Department is acceptable if approved and overseen by a Biology faculty sponsor.

Grading: Course grade is determined by laboratory/field work performance.

CAS BI 392: UNDERGRADUATE RESEARCH IN BIOLOGY 3

Prereq: junior standing, consent of instructor (faculty research mentor/sponsor), and approved application.

[2 or 4 cr] Two credit option not for Biology major or minor credit. Laboratory research or field work under the supervision of a Biology faculty mentor. Research outside of the Biology Department is acceptable if approved and overseen by a Biology faculty sponsor. Up to two 4-credit research courses may be counted as electives and one of those can apply towards the three-lab requirement.

Grading: Course grade is determined by laboratory/field work performance.

CAS BI 492: UNDERGRADUATE RESEARCH IN BIOLOGY 4

Prereq: junior or senior standing, consent of instructor (faculty research mentor/sponsor), and approved application.

Laboratory research or field work under the supervision of a Biology faculty sponsor. Research outside of the Biology Department is acceptable if approved and overseen by a Biology faculty sponsor. Up to two 4-credit research courses may be counted as electives and one of those can apply towards the three-lab requirement.

Grading: Course grade is determined by laboratory/fieldwork performance and written report.

HONORS RESEARCH IN BIOLOGY

Honors Research in Biology offers students the ability to participate in two semesters of mentored 4-credit research (CAS BI 401 and 402) and a 2-credit research seminar (CAS BI 497 or 498). Students also write and defend an honors thesis on their research. For more information on research requirements and to apply, visit www.bu.edu/biology/research-credit.

CAS BI 402: HONORS RESEARCH IN BIOLOGY

Prereq: senior standing, cumulative GPA of at least 3.5, and approval of the Department of Biology Honors Committee.

Mentored laboratory or field research with a faculty member of the Biology Department leading to graduation with Honors in Biology. One 4 credit research course can count toward the 3-lab requirement and fulfill an upper level elective. A second 4 credit research course can fulfill an upper level elective.

Grading: Course grade is determined by laboratory/fieldwork performance, written thesis, and defense of the thesis before a committee of three Biology faculty members.

CAS BI 498: HONORS RESEARCH IN BIOLOGY SEMINAR

Prereq: For students currently enrolled in or intending to apply to the Honors in Biology Program.

[2 cr] A 2-credit weekly research seminar for students in the Honors in Biology Program. A minimum grade of B+ and written assignments based on research topics in the seminar are required to graduate with departmental honors.

Notes: A minimum grade of B+ is required to graduate with Honors in Biology.

Grading: Attendance and written assignments.

RESEARCH & READINGS

READINGS IN BIOLOGY

Readings in Biology offers students the opportunity to do library research on a chosen topic in the biological sciences. Students must ask a Biology faculty member familiar with the topic to be their sponsor and submit the application found at www.bu.edu/biology/forms. These courses are often used as preparation for Undergraduate Research in Biology or Honors Research in Biology.

CAS BI 172: READINGS IN BIOLOGY 1

Prereq: freshman standing, consent of instructor (Biology faculty mentor), and approved application.

[2 cr] **Not for biology major or minor credit.** Library research on a well-defined topic in the biological sciences, chosen in conjunction with a Biology faculty member.

Grading: Individual discussions and/or a paper presentation may be required.

CAS BI 272: READINGS IN BIOLOGY 2

Prereq: sophomore standing, consent of instructor (Biology faculty mentor), and approved application.

[2 cr] **Not for biology major or minor credit.** Library research on a well-defined topic in the biological sciences, chosen in conjunction with a Biology faculty member.

Grading: Individual discussions and/or a paper presentation may be required.

CAS BI 372: READINGS IN BIOLOGY 3

Prereq: junior standing, consent of instructor (Biology faculty mentor), and approved application.

[2 cr] **Not for biology major or minor credit.** Library research on a well-defined topic in the biological sciences, chosen in conjunction with a Biology faculty member.

Grading: Individual discussions and/or a paper presentation may be required.

CAS BI 472: READINGS IN BIOLOGY 4

Prereq: junior or senior standing, cumulative GPA in biology of at least 3.0, and consent of instructor (Biology faculty mentor).

[2 cr] **Not for biology major or minor credit.** Intensive library research on a well-defined topic in the biological sciences, chosen in conjunction with a Biology faculty member. May be taken as preparation for BI 401/402 or BI 491/492.

Grading: Individual discussions and/or a paper presentation may be required.

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