

BB331: Introduction to Molecular Biology

Fall Quarter 2015

MWF 8:00-8:50 am
BRC133

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Office hours: **by appointment**

This course is part of the OSU Baccalaureate Core and fulfills the requirement for study related to Science, Technology and Society. The Baccalaureate Core (Bacc Core) Curriculum represents what the OSU faculty believes is the foundation for students' further understanding of the modern world. Informed by natural and social sciences, arts, and humanities, the Bacc Core requires students to think critically and creatively, and to synthesize ideas and information when evaluating major societal issues. Importantly, the Bacc Core promotes understanding of interrelationships among disciplines in order to increase students' capacities as ethical citizens of an ever-changing world.

Baccalaureate Core Criteria and Rationale

Synthesis

Science, Technology, and Society courses shall:

- A. Be upper division and at least 3 credits;
- B. Emphasize elements of critical thinking;
- C. Emphasize the interactions of science and/or technology and society (in general, or through significant examples of that interaction);
- D. Place the subject in historical context;
- E. Demonstrate interrelationships or connections with other subject areas;
- F. Provide a perspective on the scientific or technological approach to understanding and manipulating the world by relating that perspective to its social context;
- G. Use a multidisciplinary approach and be suitable for students from diverse fields; and
- H. Include written composition.

Synthesis courses teach students to address contemporary issues using a multi-disciplinary approach, thus engaging the world's problems with the complexity they require. Synthesis courses are upper division and are best taken after students complete their **Skills** and **Perspectives** courses.

- Courses in **Science, Technology, and Society** engage students in a multi-disciplinary study of the interaction of science and technology with society. Students gain understanding of the political and economic dimensions of scientific or technological change, the nature of the scientific enterprise, and the complexity of major revolutions in science and technology.

From <http://oregonstate.edu/main/baccalaureate-core/goals-and-values>

COURSE DESCRIPTION:

Course dealing with the molecular basis of cellular function, with emphasis upon modern developments, and the foundation for practical applications of this knowledge. The course will involve the conceptual background necessary to appreciate the applications of molecular biology. Throughout the course opportunities will be given to discuss public policy issues and questions.

Baccalaureate Core Student LEARNING OUTCOMES by Category

From <http://oregonstate.edu/ctl/baccalaureate-core>

Science, Technology, and Society

1. Analyze relationships among science, technology, and society using critical perspectives or examples from historical, political, or economic disciplines.
2. Analyze the role of science and technology in shaping diverse fields of study over time.
3. Articulate in writing a critical perspective on issues involving science, technology, and society using evidence as support.

LEARNER EXPECTATIONS:

1. Attend class and participate in discussions in an orderly and respectful manner.
2. Complete assignments and come prepared for group and class discussions.
3. Take detailed notes during class for completion of the take-home final.
4. Come to class prepared to take exam 1 (i.e. do not wait until the night before to cram for these exams).
5. Completion of assignments in a professional and timely fashion.
6. Cell phone use is absolutely prohibited during class.

LEARNING RESOURCES:

[genome.gov](http://www.genome.gov) | [National Human Genome Research Institute](http://www.genome.gov) (<http://www.genome.gov>)

[HOME | Outreach in Biotechnology](http://agsci.oregonstate.edu/orb) (<http://agsci.oregonstate.edu/orb>)

Reading assignments and other material will be posted on Blackboard for downloading.

GRADING (grades will be posted on Canvas):

1000 total points

Exam 1	200 points (20%)
Final Exam	200 points (20%)
Term paper	
Peer review	100 points (10%)
Final document	200 points (20%)
Participation/class assignments or quizzes	300 points (30%)

allowing for 2 absences (340 possible points)

Grades will be assigned as follows:

A = 921-1000	C = 721-779
A- = 900-920	C- = 700-720
B+ = 880-899	D+ = 680-699
B = 821-879	D = 621-679
B - = 800-820	D- = 600-620
C+ = 780-799	F = under 600

COURSE POLICIES

Please note the date and time of the exams. Both exams must be taken. Makeup exams will be given only in case of documented illness or family emergency. Arrangements for makeup exams must be made before the exam. Written assignments submitted after the due date will be penalized 40 points per day. Students are encouraged to submit written assignments early.

PARTICIPATION

For each class period in attendance, students receive up to 20 points for completing individual or group worksheets, class assignments, or quiz.

TERM PAPER

Based on learning outcome #3 – Articulate in writing a critical perspective on issues involving science, technology, and society, using evidence as support.

Critical thinking skills will be developed by independently researching, analyzing, and communicating the impact of molecular biology on society (at least 2000 words, not including references).

The paper must cover perspectives or examples from historical, political, and economic disciplines.

Use Arial font 12, double space, 1 inch margins

No quotes – use your own words to explain the material

Limit use of material from lecture – term paper needs to cover information acquired through independent research

Term paper should be an evidence based argument.

At least ten independent references (APA or MLA format with in-text citations) are required.

Each student must hand in a printed hardcopy and email Dr. Gombart a software program file, such as Word, containing the document. Papers submitted after the due date will be penalized 40 points per day.

Grading Guidelines for Term Paper

Term paper peer review

Complete first draft due Wednesday, November 18 = 50 points

Peer review of partner's paper due Wednesday, November 25 = 50 points

Final document

Structure (100 points)

20 points - Does the paper have a clear thesis statement that makes an assertion about the impact of molecular biology on society? (past, current, and/or future)

20 points – Does the introduction provide enough information to set up the thesis statement?

20 points – Does the conclusion summarize the main arguments and support the assertion made by the thesis statement?

20 points - Are words misspelled or used incorrectly? Are sentences clear and understandable?

20 points - Is the paper organized and arguments easy to follow?

Content (100 points)

Does the information presented provide the evidence necessary to support the thesis statement?

Does the paper present the current impact of molecular biology on society?

Is detailed evidence presented to demonstrate impact?

Does the paper present the potential impact molecular biology may have in the future?

Is detailed evidence presented to predict potential impact in the future?

Does the paper cover perspectives or examples from historical disciplines?

Does the paper cover perspectives or examples from political disciplines?

Does the paper cover perspectives or examples from economic disciplines?

Does the paper discuss the major hurdles that must be overcome for molecular biology to increase impact on society in the future?

UNIVERSITY AND DEPARTMENTAL POLICIES:

Statement Regarding Students with Disabilities

"Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 737-4098."

Please note: The Department of Biochemistry and Biophysics follows the university rules on civility and honesty. Cheating or plagiarism by students is subject to the disciplinary process outlined in the Student Conduct Regulations. These can be found at:

<http://oregonstate.edu/studentconduct/http://%252Foregonstate.edu/studentconduct/code/index.php>.

Students are expected to be honest and ethical in their academic work. Academic dishonesty is defined below.

a) Academic or Scholarly Dishonesty is defined as an act of deception in which a Student seeks to claim credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any academic work or research, either through the Student's own efforts or the efforts of another.

b) It includes:

(i) CHEATING - use or attempted use of unauthorized materials, information or study aids, or an act of deceit by which a Student attempts to misrepresent mastery of academic effort or information. This includes but is not limited to unauthorized copying or collaboration on a test or assignment, using prohibited materials and texts, any misuse of an electronic device, or using any deceptive means to gain academic credit.

(ii) FABRICATION - falsification or invention of any information including but not limited to falsifying research, inventing or exaggerating data, or listing incorrect or fictitious references.

(iii) ASSISTING - helping another commit an act of academic dishonesty. This includes but is not limited to paying or bribing someone to acquire a test or assignment, changing someone's grades or academic records, taking a test/doing an assignment for someone else by any means, including misuse of an electronic device. It is a violation of Oregon state law to create and offer to sell part or all of an educational assignment to another person (ORS 165.114).

(iv) TAMPERING - altering or interfering with evaluation instruments or documents.

(v) PLAGIARISM - representing the words or ideas of another person or presenting someone else's words, ideas, artistry or data as one's own, or using one's own previously submitted work. Plagiarism includes but is not limited to copying another person's work (including unpublished material) without appropriate referencing, presenting someone else's opinions and theories as one's own, or working jointly on a project and then submitting it as one's own.

c) Academic Dishonesty cases are handled initially by the academic units, following the process outlined in the University's Academic Dishonesty Report Form, and will also be referred to SCCS for action under these rules.

Behaviors disruptive to the learning environment will not be tolerated and will be referred to the Office of Student Conduct for disciplinary action.

"The goal of Oregon State University is to provide students with the knowledge, skill and wisdom they need to contribute to society. Our rules are formulated to guarantee each student's freedom to learn and to protect the fundamental rights of others. People must treat each other with dignity and respect in order for scholarship to thrive. Behaviors that are disruptive to teaching and learning will not be tolerated, and will be referred to the Student Conduct Program for disciplinary action. Behaviors that create a hostile, offensive or intimidating environment based on gender, race, ethnicity, color, religion, age, disability, marital status or sexual orientation will be referred to the Affirmative Action Office."