



Oregon State University

Ecampus

Course Name: Introductory Biology II

Course Number: BI 205

Credits: 4 Credits

Prerequisites, co-requisites: previous or concurrent enrollment in (CH 121* or CH 201* or CH 221* or CH 224H*) or ((CH 231* or CH 231H*) and (CH 261* or CH 261H* or CH 271*))

Course Description BI 205. INTRODUCTORY BIOLOGY II (4). 

Fundamental concepts in molecular and cellular biology, beginning with biomolecules and the origin of life, and ending with genomics. Significant emphasis throughout on applications of biotechnology to solve human problems. Laboratory emphasizes skills in critical thinking, scientific writing, and experimental design. Not intended for pre-health profession students. Lec/lab. (Bacc Core Course)

This introductory biology course covers fundamental concepts in molecular and cellular biology, beginning with biomolecules and the origin of life, and ending with genomics. Whenever possible, the course emphasizes applications of biotechnology to solve human problems. The companion laboratory reinforces general course content while cultivating student skills in critical thinking, scientific writing, and experimental design. This course combines approximately 90 hours of instruction, online laboratories, and assignments for 4 credits.

Baccalaureate CORE learning objectives:

This course fills the Perspectives category of Biological and Physical Sciences.

Students will:

1. Recognize and apply concepts and theories of basic physical or biological sciences.
2. Apply scientific methodology and demonstrate the ability to draw conclusions based on observation, analysis, and synthesis.
3. Demonstrate connections with other subject areas

This course combines approximately 120 hours of instruction, online activities, and assignments for 4 credits.

Course specific learning objectives:

By the end of this course, students will be able to:

1. Illustrate the roles of different biological molecules in an organism (BACC Core Objective 1).
2. Summarize scientific hypotheses for the origin of life (Primordial soup, RNA world, etc...), and explain why these are necessarily more speculative than Darwin's theory of evolution by natural selection in extant populations (BACC Core Objective 1).
3. Use the Central Dogma of molecular biology to explain how proteins are produced using genetic information (BACC Core Objective 1).
4. Describe how cells generate and use energy (BACC Core Objective 1 & 3).
5. Explain how biological systems grow and change by processes based upon chemical transformation pathways and are governed by the laws of thermodynamics (BACC Core Objective 1 & 3).
6. Compare and contrast prokaryotic, plant, and animal cells (BACC Core Objective 1).
7. Explain how growth and cell division are regulated in the cell cycle, and illustrate what goes wrong in cancerous cells (BACC Core Objective 1 & 3).
8. Explain how biotechnology links molecular genetics to agriculture, and critically evaluate arguments for and against genetically modified organisms in agriculture (BACC Core Objective 1, 2 & 3).
9. Apply the process of science; including making observations, developing hypotheses, making predictions, and designing simple experiments to test predictions (BACC Core Objective 1, 2 & 3).
10. Effectively communicate scientific results in written form and evaluate the writing of their peers (BACC Core Objective 1, 2 & 3).
11. Evaluate the relevance of molecular and cellular biology for addressing human societal, agricultural, and environmental problems (BACC Core Objective 1, 2 & 3).

Communication

Please post all course-related questions in the General Discussion Forum so that the whole class may benefit from our conversation. Please contact me directly for matters of a personal nature. The best way to get in touch with me is via email (Andrew.bouwma@oregonstate.edu). I will try to reply to course-related questions and email within 48 hours.

Canvas

This course will be delivered via Canvas where you will interact with your classmates and with me as your instructor. Within the course Canvas site you will access the learning materials, such as the syllabus, class discussions, assignments, projects, and quizzes. To preview how an online course works, visit the [Ecampus Course Demo](#). For technical assistance, please visit [Ecampus Technical Help](#).

Technical Assistance

If you experience computer difficulties, need help downloading a browser or plug-in, assistance logging into the course, or if you experience any errors or problems while in your online course, contact the OSU Help Desk for assistance. You can call (541) 737-3474, email osuhelpdesk@oregonstate.edu or visit the [OSU Computer Helpdesk](#) online.

Learning Resources (textbooks, lab manuals, etc.), specific required and optional:

1. Biology: How Life Works. Morris, Hartl, Knoll and Lue. 2013 Freeman Macmillan Publishing (ISBN-10: 1-4292-1870-3)
2. Launchpad (Purchased as a package with "How Life Works").
3. Calibrated Peer Review. You will receive account information via email with registration for the course.

****Note to prospective students:** Please check with the OSU Bookstore for up-to-date information for the term you enroll (<http://www.osubookstore.com/> or 800-595-0357). If you purchase course materials from other sources, be very careful to obtain the correct ISBN.

Calibrated Peer Review

This course will utilize an innovative peer review management system for the online laboratory projects. This program, Calibrated Peer Review (CPR), was developed at UCLA using the scientific peer review process as a model. Studies have shown that students who complete CPR assignments not only learn to be more confident and skilled writers, but also improve their content knowledge. Visit <http://cpr.molsci.ucla.edu/Home.aspx> for information on how the program works, and an exhaustive list of citations regarding its efficacy (<http://cpr.molsci.ucla.edu/Publications.aspx>).

Course Content

Week	Topic	Reading Assignments, Quizzes, and Exams	Lab activity
1	Introduction & Orientation- Biomolecules	How Life Works: Case 1, Chapters 1 and 2, Quiz 1	Biomolecules testing
2	Origin of life Molecular genetics	How Life Works: Chapter 3 Quiz 2	Central dogma and "Inner Life of the Cell" animations CPR Writing assignment 1
3	Central Dogma of Molecular Biology	How Life Works: Chapter 4 Midterm I	Genotyping, PCR and gel electrophoresis
4	Cell Biology Endosymbiotic Theory	How Life Works: Chapters 5 and 10 Quiz 3	Endosymbiosis
5	Metabolism	How Life works Chapter 6 Quiz 4	Experimental design, osmosis and diffusion, statistics

6	Respiration and Fermentation	How Life Works Chapter 7 Quiz 5	Experimental design, fermentation experiment CPR writing assignment 2
7	Photosynthesis	How Life Works Chapter 8 Midterm II	Photosynthesis experiment
8	Mitosis and cell cycle Meiosis	How Life Works Case 2 Chapter 11	Mitosis and Meiosis simulation Cancer case study
9	DNA replication Biotechnology	How Life Works Chapter 12 Quiz 7	Golden Rice case study CPR writing assignment 3
10	Mutation and Genomics	How Life Works Chapter 13 Quiz 8	BLAST exercises
Finals		Final Exam	

Evaluation of student performance

Assessments	Points	Total points
Exams	3 x 100	300

Weekly homework / discussion board	20 x 4.5	90
Quizzes	8 x 7.5	60
Laboratory		
Weekly assignments	10 x 7.5	75
Calibrated Peer Review	3 x 25	75
TOTAL		600

Grades:

Percentage	Grade
91%	A
90%	A-
80%	B-
70%	C-
60%	D-
<60%	F

Late work policy

Students are expected to turn in assignments on time. Students are penalized 5% per day for late papers.

Grading appeals

We are happy to fix any errors or irregularities in grades. If you feel that there was an error in grading your quiz or assignment you must submit your request in writing (email), detailing which questions you feel are in error and why your answer(s) should receive additional credit. For instance, if there is information in the textbook or other course materials that supports your answer, quote the information and provide the page and paragraph number. If you believe that your Calibrated Peer Review score is lower than it should be because of errors made by peers in reviews of your work or because of errors in the instructions or calibration rubric, you may appeal your score. To appeal, provide a written justification for each of your answers in an email to Dr. Bouwma. All requests must be submitted in an email to Dr. Bouwma within 1 week of the posting of the answer key or the return of the assignment to be considered.

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.

Guidelines for a productive and effective online classroom

- The discussion board is your space to interact with your colleagues and discuss course topics or respond to your colleague's statements. It is expected that each student will participate in a mature and respectful fashion.
- Posting of personal contact information is discouraged (e.g. telephone numbers, address, personal website address).
- Participate actively in the discussions after you have watched the weekly lectures and thought carefully about the issues.
- Pay close attention to what your classmates write in their online comments. Ask clarifying questions when appropriate. These questions are meant to probe and shed new light, not to minimize or devalue comments.
- Think through and reread your comments before you post them.
- Assume the best of others in the class and expect the best from them.
- Value the diversity of the class. Recognize and value the experiences, abilities, and knowledge that each person brings to class.

Conduct in this online classroom: Students are expected to conduct themselves in the course (e.g., on discussion boards, email postings) in compliance with the university's regulations regarding civility (listed below). Students will be expected to treat all others with the same respect as they would want afforded to themselves. Disrespectful behavior to others (such as harassing behavior, personal insults, inappropriate language) or disruptive behaviors in the course (such as persistent and unreasonable demands for time and attention both in and out of the classroom) is unacceptable and can result in sanctions as defined by Oregon Administrative Rules [Division 015 Student Conduct Regulations](#).

Academic Integrity

Students are expected to comply with all regulations pertaining to academic honesty. For further information, visit [Avoiding Academic Dishonesty](#), or contact the office of Student Conduct and Mediation at 541-737-3656.

OAR 576-015-0020 (2) Academic or Scholarly Dishonesty:

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.

REFUND POLICY INFORMATION

Please see the [Ecampus website](#) for policy information on refunds and late fees.