STUDENT WARNING: This course syllabus is from a previous semester archive and serves only as a preparatory reference. Please use this syllabus as a reference only until the professor opens the classroom and you have access to the updated course syllabus. Please do NOT purchase any books or start any work based on this syllabus; this syllabus may NOT be the one that your individual instructor uses for a course that has not yet started. If you need to verify course textbooks, please refer to the online course description through your student portal. This syllabus is proprietary material of APUS.

Course Summary

Course: BIOL133  Title: General Biology I with Lab  
Length of Course: 16  
Prerequisites: N/A  Credit Hours: 4

Description

Course Description: This course provides a foundational basis for the study of basic biology. It is the first in a two-part biology series that is designed for students who intend to complete a degree that requires a majors-level biology course. Topics in this course include an introduction to the molecular basis of life, biology of the cell, genetic and molecular biology, evolution and diversity of life on Earth. The laboratory portion of this course will include hands-on as well as virtual laboratories that complement the topics and concepts covered in the lecture component. Some of the laboratory activities require the use of glass or sharp laboratory instruments; therefore students must have a safe work area available to perform laboratory activities. Students must also have room temperature storage available in order to maintain laboratory materials and specimens and access to very hot or boiling water. In addition, students must be able to document their laboratory work using still pictures and/or video. NOTE: This course requires the student to purchase additional materials at substantial cost that are not covered by the book grant. Please refer to the Course Materials section for additional details.

Course Scope:

This course is the first in a two-part biology series that is designed for students who intend to complete a degree that requires a majors’ level biology course. It serves as an introduction to biology and will include the following specific modules: Part I: the science of biology, the nature of molecules and the properties of water, and the chemical building blocks of life. Part II: cell structure, membranes, energy and metabolism, how cells harvest energy, cell communication and cell division. Part III: sexual reproduction and meiosis, patterns of inheritance, chromosomes, mapping and meiosis, DNA, genes and how they work, control of gene expression, biotechnology and genomics. Part IV: genes within populations, the evidence for evolution, the origin of species, and systematic, phylogenies and comparative biology. Part V: the origin and diversity of life, viruses, prokaryotes and protists.

In addition to the lecture material, this course will contain both virtual and online laboratories that will enhance and supplement the readings.

Objectives

After successfully completing this course, you will be able to:
• CO-1: Identify the levels of organization of life, its diversity and the processes by which life has achieved its present form.
• CO-2: Explain the importance of the biochemical building blocks and water.
• CO-3: State energy pathways such as photosynthesis, respiration, and overall cellular metabolism.
• CO-4: Explain scientific literacy by discussing real life applications of biology in the form of case studies.
• CO-5: Identify the basic cell and its processes of mitosis and meiosis.
• CO-6: Summarize the mechanisms of inheritance and the process by which protein and DNA are synthesized.
• CO-7: Recall the various examples of life on earth including prokaryotes, viruses and protists.
• CO-8: Demonstrate the role of the student-scientist to the public regarding the relevant and topical scientific issues.

Outline

Week 1: Chapter 1: The Study of Life, Chapter 2: The Chemical Foundation of Life

Learning Objectives
CO-1
CO-2
Readings and Assessments
Chapters 1 & 2
Forum Post #1
Study Questions Ch 1-2
Assignment Due
Forum Post #1
Honor Pledge
Lab Safety Video
Study Questions Ch 1-2

Week 2: Chapter 3: Biological Macromolecules

Learning Objectives
CO-2
Readings and Assessments
Chapter 3
Forum Post #2
Lab Set 1
Week 3: Chapter 4: Cell Structure, Chapter 5: The Structure and Function of Plasma Membranes

Learning Objectives
CO-2
CO-5

Readings and Assessments
Chapter 4 & 5
Forum Post #3
Lab Set 1
Study Questions Ch 4 & 5

Assignment Due
Forum Weeks 2 & 3
Lab Set 1
Study Questions Ch 4 & 5

Week 4: Chapter 6: Metabolism

Learning Objectives
CO-3

Readings and Assessments
Chapter 6
Lab Set 2
Study Questions Ch 6

Assignment Due
Forum Week 4
Study Questions Ch 6
Exam 1: Weeks 1-4

Week 5: Chapter 7: Cellular Respiration, Chapter 8: Photosynthesis
Week 6: Chapter 9 Cell Communication

Week 7: Chapter 10: Cell Reproduction, Chapter 11: Meiosis and Sexual Reproduction
Week 8: Chapter 12: Mendel's Experiments and Heredity

Learning Objectives
CO-6

Readings and Assessments

Chapter 12

Formative Assessment Ch 12

Lab Set 4

Assignment Due
Forum Weeks 7 & 8
Study Questions Ch 12
Exam 2: Weeks 5-7

Week 9: Chapter 13: Modern Understanding of Inheritance

Learning Objectives
CO-6

Readings and Assessments

Chapter 13

Forum Post #7

Lab Set #4

Study Questions Ch 13

Assignment Due
Forum Weeks 9 & 10
Lab Set 4
Study Questions Ch 13

Week 10: Chapter 14: DNA Structure and Function

Learning Objectives
Week 11: Chapter 15: Genes and Proteins

Learning Objectives
CO-6
Readings and Assessments
Chapter 15
Forum Post #9
Lab Set #5
Study Questions Ch 15
Assignment Due
Forum Weeks 11 & 12
Lab Set # 5
Study Questions Ch 15

Week 12: Chapter 16: Gene Expression

Learning Objectives
CO-6
Readings and Assessments
Chapter 16
Study Questions Ch 16
Lab Set # 6
Assignment Due
Forum Weeks 11 & 12
Week 13: Chapter 17: Biotechnology and Genomics

Learning Objectives
CO-6

Readings and Assessments

Chapter 17

Forum Post #10

Lab Set #6

Study Questions Ch 17

Assignment Due

Forum Weeks 13 & 14

Lab Set # 6

Study Questions Ch 17

Week 14: Chapter 18: Evolution and the Origin of Species

Learning Objectives
CO-7

Readings and Assessments

Chapter 18

Forum Post #11

Lab Set # 7

Study Questions Ch 18

Assignment Due

Forum Weeks 13 & 14

Study Questions Ch 18

Week 15: Chapter 19: Evolution within Populations

Learning Objectives
CO-7

Readings and Assessments
Chapter 19

Lab Set #7

Study Questions Ch19

Assignment Due

Forum Weeks 15 & 16

Lab Set 7

Study Questions Ch19

Week 16: Chapter 20: Phylogenies and the History of Life

Learning Objectives

CO-7

Readings and Assessments

Chapter 20

Forum Post # 12

Study Questions Ch 20

Assignment Due

Forum Weeks 15 & 16

Study Questions Ch 20

Exam 4: Weeks 12 - 16

Evaluation

Reading Assignments: There are weekly readings as described in the course outline, below. These readings are based out of the text, or will be provided to students within the resource tab in the electronic classroom.

Forum Assignments: There will be a forum discussion every week of the course. Forum topics will be posted within the forum section of the class. Participation is mandatory and vigorous interaction is required. The forums will consist of a case study selected by the instructor from a peer reviewed site. The case study will describe a scenario relevant to the readings and offer multiple questions for discussions and a deeper examination of the issues. The instructor will moderate the discussion. Students will be evaluated by the instructor (see Rubric for the forums in the forum description). Forums will be worth 100 points each.

Formative Assessments/Homework Assignments: Each week students will complete formative assessments that are designed to help students review and revise the material for the given week. Assessments will have multiple formats, which may include matching, true/false, short answer, and multiple choice. These assessments can be done 2 times, and students will receive nominal credit for each assessment upon completion.

Exams: There will be four exams throughout this course, during Weeks 4, 8, 12 and 16. Exams will be open book, open note. Different exams will be weighted differently depending upon the number of chapters or
supplemental readings covered. The exams will mostly include application questions in multiple formats, including multiple choice as well as short answer.

- Exam 1 will cover six chapters.
- Exam 2 will cover five chapters.
- Exam 3 will cover four chapters.
- Exam 4 will cover five chapters. Therefore, Exam 4 will not be cumulative.

**Laboratories:** There will be eight labs due throughout the course. The laboratories will mostly consist of hands-on lab experiments that will be sent to the student within a kit. There will also be internet based exercises that will apply the concepts learned in the course.

Please see the [Student Handbook](#) to reference the University’s grading scale.

**Grading:**

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### Materials

**Book Title:** General Biology v. 1 eScience kit  
**Author:** eScience  
**Publication Info:** eScience  
**ISBN:** 1699

Additional required items are available to order from the APUS Bookstore. If you buy these items from other vendors, you may not receive all the parts you need for your course. These items (as noted) are not covered by the APUS Book Grant.  
**Author:** N/A  
**Publication Info:** N/A  
**ISBN:** N/A

**Book Title:** Bio Principles 1st ed - available online, link provided inside the classroom  
**Author:** OpenStax  
**Publication Info:** OpenStaxCollege  
**ISBN:** NTMO

### Required Technology

- See the Technology Requirements section of the undergraduate catalog for the minimum hardware and software requirements.  
- Microsoft Office 365 is available to APUS students for free. To sign up, visit http://products.office.com/en-us/student. If you have questions about accessing the software, please contact Classroom support at classroomsupport@apus.edu.

### Web Sites

In addition to the required course texts, the following public domain web sites are useful. Please abide by the university’s academic honesty policy when using Internet sources as well. Note web site addresses are subject to change.
Course Guidelines

Citation and Reference Style

- Attention Please: Students will follow the APA Format as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Format.

Tutoring

- Tutor.com offers online homework help and learning resources by connecting students to certified tutors for one-on-one help. AMU and APU students are eligible for 10 free hours* of tutoring provided by APUS. Tutors are available 24/7 unless otherwise noted. Tutor.com also has a SkillCenter Resource Library offering educational resources, worksheets, videos, websites and career help. Accessing these resources does not count against tutoring hours and is also available 24/7. Please visit the APUS Library and search for 'Tutor' to create an account.

Late Assignments

- Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. The due date for each assignment is listed under each Assignment.
- Generally speaking, late work may result in a deduction up to 15% of the grade for each day late, not to exceed 5 days.
- As a working adult I know your time is limited and often out of your control. Faculty may be more flexible if they know ahead of time of any potential late assignments.

Turn It In

- Faculty may require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. In some cases professors may require students to use Turnitin.com. This is automatically processed through the Assignments area of the course.

Academic Dishonesty

- Academic Dishonesty incorporates more than plagiarism, which is using the work of others without
Academic dishonesty includes any use of content purchased or retrieved from web services such as CourseHero.com. Additionally, allowing your work to be placed on such web services is academic dishonesty, as it is enabling the dishonesty of others. The copy and pasting of content from any web page, without citation as a direct quote, is academic dishonesty. When in doubt, do not copy/paste, and always cite.

Submission Guidelines

- Some assignments may have very specific requirements for formatting (such as font, margins, etc) and submission file type (such as .docx, .pdf, etc). See the assignment instructions for details. In general, standard file types such as those associated with Microsoft Office are preferred, unless otherwise specified.
- APUS offers students free access to the Microsoft Office Suite. More information can be found here: https://apus.libanswers.com/coursematerials/faq/2180

Disclaimer Statement

- Course content may vary from the outline to meet the needs of this particular group.

Communicating on the Forum

- Forums are the heart of the interaction in this course. The more engaged and lively the exchanges, the more interesting and fun the course will be. Only substantive comments will receive credit. Although there is a final posting time after which the instructor will grade comments, it is not sufficient to wait until the last day to contribute your comments/questions on the forum. The purpose of the forums is to actively participate in an on-going discussion about the assigned content.
- “Substantive” means comments that contribute something new and hopefully important to the discussion. Thus a message that simply says “I agree” is not substantive. A substantive comment contributes a new idea or perspective, a good follow-up question to a point made, offers a response to a question, provides an example or illustration of a key point, points out an inconsistency in an argument, etc.
- As a class, if we run into conflicting viewpoints, we must respect each individual’s own opinion. Hateful and hurtful comments towards other individuals, students, groups, peoples, and/or societies will not be tolerated.

University Policies

Student Handbook

- Drop/Withdrawal policy
- Extension Requests
- Academic Probation
- Appeals
- Disability Accommodations

The mission of American Public University System is to provide high quality higher education with emphasis on educating the nation’s military and public service communities by offering respected, relevant, accessible, affordable, and student-focused online programs that prepare students for service and leadership in a diverse, global society.
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