

SCIN211

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 : IN521 **Title :** Principles of Genetics with Lab

Length of Course : 8 Robert Clegg

Prerequisites : **Credit Hours :** 4

Description

Course Description: This course is an introduction to the basic principles of human genetics and heredity. Students will investigate both classical Mendelian genetics and modern molecular genetics. Topics include the transmission of genes from one generation to the next, the molecular structure of genes, the regulation of gene expression, genes and cancer, genetic technology, genetically modified foods, gene therapy and population genetics. The course is designed for all students interested in human genetics, the application of genetic principles and genetic technology. (Prerequisite: BIOL133 or SCIN130)

Course Scope:

Principles of Genetics is an eight weeks long course and is appropriate for all students interested in patterns of genetic inheritance, the application of genetic principles and genetic technology. The course is also an excellent complement to General Studies, Public Health, Sports and Health Science, Nursing, and Environmental Science degrees as well as any program involving the sciences. This course includes a quantitative lab that focuses on understanding genetics through interactive activities and problem solving. Assignments and exams will consist of a variety of question formats and projects. SCIN130 Introduction to Biology is a prerequisite for this course.

Objectives

This course in genetics has eight central learning objectives around which course learning is built. They are:

- **CO- 1** Interpret patterns of genetic inheritance.
- **CO- 2** Solve quantitative genetic problems using data.
- **CO- 3** Recognize mechanisms and outcomes of genetic modification including crossing over and mutation.
- **CO- 4** Identify the basic processes of molecular genetics including DNA structure, chromosome organization, and the relationship between DNA and proteins.
- **CO- 5** Describe genetic inheritance of complex traits.
- **CO- 6** Identify patterns of genetic variation in natural populations.
- **CO- 7** Examine a specific genetic inheritance pattern.

- **CO- 8** Explain applications of genetic technology.
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Outline

Week 1: Course Introduction, Science of Genetics Mendelian Genetics

Learning Objectives

CO-1

Readings

Text Readings:

Chapter 1

(Chapter 2)

Chapter 3 (pgs. 40-46)

In Course Materials:

SCIN 211 Course Syllabus

Assignment

Forum Assignment Lesson 1: Student and Genetics Introductions

Quiz Lesson 1

Lab Lesson 1

Week 2: Mendelian Genetics (con't)

Learning Objectives

CO-1

Readings

Text Readings:

Chapter 3 (pgs. 46-56)

Assignment

Forum Assignment Lesson 2

Quiz Lesson 2

Lab Lesson 2

Week 3: Allelic Variation & Gene Action, Sex Chromosomes, Sex Linkage, & Sex Determination

Learning Objectives

CO-2

Readings

Text Readings:

Chapter 4

Chapter 5

Assignment

Forum Assignment Lesson 3**Quiz Lesson 3****Lab Lesson 3****Week 4: Chromosomal Variation- Crossing Over & Linkage**

Learning Objectives

CO-2

CO-3

Readings

Text Readings:

Chapter 6

Chapter 7

Assignment

PowerPoint Project**Forum Assignment Lesson 4****Quiz Lesson 4****Lab Lesson 4****Week 5: Molecular Genetics I- Replication**

Learning Objectives

CO-4

Readings

Text Readings:

Chapter 9

Chapter 10

(Chapters 14, 15, 16-background reading)

Assignment

Forum Assignment Lesson 5**Quiz Lesson 5****Lab Lesson 5****Week 6: Molecular Genetics II- Transcription & Translation**

Learning Objectives

CO-4

Readings

Text Readings:

Chapter 11

Chapter 12

(Chapter 21- background reading)

Assignment

Forum Assignment Lesson 6

Quiz Lesson 6

Lab Lesson 6

Week 7: Mutation

Learning Objectives

CO-3

CO-5

Readings

Text Readings:

Chapter 13

Assignment

Forum Assignment Lesson 7

Quiz Lesson 7

Lab Lesson 7

Week 8: Quantitative & Population Genetics

Learning Objectives

CO-6

CO-7

Readings

Text Readings:

Chapter 22

Chapter 23

Assignment

PowerPoint Project

Forum Assignment Lesson 8

Quiz Lesson 8

Lab Lesson 8

Evaluation

Forum Assignments

There are eight forum activities in this course, one for each week. The student is responsible for participating in each of the eight forums. The first week is an introductory forum. For all forums, each student will respond answer associated questions as posed by the forum instructions, offer his/her analysis to the questions posed, and respond **substantively** to at least **two** classmate posts. The initial student forum response will contain significant thought and analysis, utilize outside reference sources, and contain at least 300 words. Initial student forum responses are posted by **Wednesday** of each week (with the exception of Week 1). Responses to classmate posts are significant and substantive by asking probing questions, emphasizing points of agreement, and clearly discussing points of difference (i.e., the posts contain more content than "I agree.") Classmate response posts are a minimum of 75 words and are completed by **Sunday** each week.

Quizzes

Eight quizzes will cover the reading material from the Snustad & Simmons *Principles of Genetics* textbook. Each quiz is open-book and open-note and meant to represent a checkpoint for understanding concepts. It is expected that each quiz represents the student's **individual efforts even** though it is open book and open note. Each quiz contains multiple-choice questions and is not proctored. The student must submit quizzes before 11:55 PM EST on Sunday night of the week assigned. It is important that the student does not access the quiz until ready to take the quiz. These are timed quizzes can only be accessed once. Once the quiz is accessed the timer begins. The student will have two hours take each quiz. The student must complete this quiz during its assigned week.

Interactive and Quantitative Laboratory Exercises

Each week there will be a lab exercise that will have a combination of animations, interactive activities, and problem solving calculations. The instructions for the lab exercises are located in Assignments area of the classroom. You will also submit your completed lab exercise document to the Assignments area. Lab exercises should represent the student's own work; however, interaction with classmates and the instructor is encouraged.

PowerPoint Projects (Due Week 4 and 8)

PowerPoint project assignments in this course represent the student's synthesis and research of large scale concepts in Genetics applied to a specific topic or situation. Projects represent the student's original work and thought with carefully cited research. Specific, detailed instructions and the list of potential topics and activities can be found in the online classroom. These project assignments will require significant time and thought. The first project is due in Week 4 and the second in Week 8. **Plagiarism is not tolerated and will result in a zero score, at minimum.** If you have any questions about proper citation and what consists of plagiarism please ask.

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

Grading:

Name	Grade %
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Materials

Book Title: Principles of Genetics, 6th ed - The VitalSource e-book is provided via the APUS Bookstore

Author: Snustad, D. Peter

Publication Info: Wiley

ISBN: 9780470903599

Book Title: You must validate your cart to get access to your VitalSource e-book(s). If needed, instructions are available here - <http://apus.libguides.com/bookstore/undergraduate>

Author: N/A

Publication Info: N/A

ISBN: N/A

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.

Site Name	Web Site URL/Address
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National Center for Biotechnology Information <http://www.ncbi.nlm.nih.gov/>

Learn Genetics <http://learn.genetics.utah.edu/>

DNA Primer <http://www.dnafb.org/>

Inside Cancer <http://www.insidecancer.org/>

Public Health Genomics <http://www.cdc.gov/genomics/default.htm>

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](https://www.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 citation. 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.

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 view points, 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.
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University Policies

[Student Handbook](#)

- [Drop/Withdrawal policy](#)
- [Extension Requests](#)
- [Academic Probation](#)
- [Appeals](#)
- [Disability Accommodations](#)

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