BIO 184: GENERAL GENETICS

In Workflow

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Approval Path

1. Fri, 02 Aug 2024 19:25:21 GMT
   Robin Altman (altman): Rollback to Initiator
2. Fri, 02 Aug 2024 19:30:09 GMT
   Robin Altman (altman): Rollback to Initiator
3. Fri, 02 Aug 2024 19:31:10 GMT
   Robin Altman (altman): Approved for BIO Committee Chair
4. Tue, 20 Aug 2024 01:23:12 GMT
   Susanne Lindgren (lindgren): Approved for BIO Chair
5. Wed, 04 Sep 2024 22:10:42 GMT
   Mikkel Jensen (mikkel.jensen): Approved for NSM College Committee Chair
6. Wed, 04 Sep 2024 23:19:25 GMT
   Chris Taylor (ctaylor): Approved for NSM Dean

Date Submitted: Fri, 02 Aug 2024 19:30:48 GMT

Viewing: BIO 184 : General Genetics

Last edit: Fri, 02 Aug 2024 19:30:47 GMT

Changes proposed by: Robin Altman (219172578)

Contact(s):

Name (First Last)	Email	Phone 999-999-9999
Robin Altman	altman@csus.edu	916-278-2138

Catalog Title:
General Genetics

Class Schedule Title:
General Genetics

Academic Group: (College)
NSM - Natural Sciences & Mathematics

Academic Organization: (Department)
Biological Sciences

Will this course be offered through the College of Continuing Education (CCE)?
No

Catalog Year Effective:
Spring 2025 (2025/2026 Catalog)

Subject Area: (prefix)
BIO - Biological Sciences

Catalog Number: (course number)
184

Course ID: (For administrative use only.)
106251

Units:
4

Is the only purpose of this change to update the term typically offered or the enforcement of existing requisites at registration?
No

In what term(s) will this course typically be offered?
Fall, Spring

Does this course require a room for its final exam?
Yes, final exam requires a room

This course complies with the credit hour policy:
Yes

Justification for course proposal:
We propose to revise the stated prerequisites for BIO 184 (General Genetics) to include CHEM 1A. This is not a substantive change. The current BIO 184 prerequisites listed in the catalog description include BIO 1, BIO 2, and declared Biological Sciences major. Because BIO 2 requires CHEM 1A as a prerequisite, students should have completed CHEM 1A before taking BIO 184, but CHEM 1A is not currently listed as a separate line-item prerequisite in the course description. Furthermore, the Biological Sciences major used to have a pre-major in place that required completion of CHEM 1A before students entered the major and enrolled in BIO 184. With the discontinuation of the pre-major a few years ago, we are now finding a subset of students enroll in BIO 184 without first completing the CHEM 1A prerequisite. Student success in BIO 184 has suffered without this prerequisite chemistry content knowledge. We would like to revise the course description to specifically list the CHEM 1A prerequisite to make it clearer to students that they need to complete CHEM 1A before taking BIO 184.

We also would like to revise the terms in which BIO 184 is offered. Due to fluctuating enrollment, we can no longer guarantee BIO 184 will be offered during the Summer. We have revised the terms offered to just Fall and Spring, so students do not rely on BIO 184 being offered during the Summer when planning their academic programs.

To bring this course into compliance with the current Workflow submission requirements, we have also now included Expected Student Learning Outcomes, paired Assessment Strategies, and a course note about safety training and personal protective equipment.

Course Description: (Not to exceed 90 words and language should conform to catalog copy.)
Principles of inheritance as they relate to microorganisms, plants, animals and humans. Genetic mechanisms are analyzed according to evidence derived from both classical and current research. The nature, structure, and function of the genome are considered at the molecular level. Lecture three hours; laboratory three hours.

Are one or more field trips required with this course?
No

Fee Course?
Yes

Is this course designated as Service Learning?
No

Is this course designated as Curricular Community Engaged Learning?
No

Does this course require safety training?
Yes

Does this course require personal protective equipment (PPE)?
Yes

Course Note: (Note must be a single sentence; do not include field trip or fee course notations.)
This course requires safety training and personal protective equipment (PPE).

Does this course have prerequisites?
Yes

Prerequisite:
BIO 1 and BIO 2 and CHEM 1A; declared major in Biological Sciences, Biochemistry, Chemistry or instructor consent

Prerequisites Enforced at Registration?
Yes

Does this course have corequisites?
No

Graded:
Letter

Approval required for enrollment?
No Approval Required

Course Component(s) and Classification(s):
Laboratory
Lecture

Laboratory Classification
CS#16 - Science Laboratory (K-factor=2 WTU per unit)
Laboratory Units
1

Lecture Classification
CS#02 - Lecture/Discussion (K-factor=1WTU per unit)
Lecture Units
3

Is this a paired course?
No

Is this course crosslisted?
No

Can this course be repeated for credit?
No

Can the course be taken for credit more than once during the same term?
No

Description of the Expected Learning Outcomes and Assessment Strategies:

List the Expected Learning Outcomes and their accompanying Assessment Strategies (e.g., portfolios, examinations, performances, pre-and post-tests, conferences with students, student papers). Click the plus sign to add a new row.

	Expected Learning Outcome	Assessment Strategies
1	Students will be able to describe breakthroughs of discovery in the history of genetics and identify the prominent scientist(s) who were involved in these breakthroughs.	Pre-Lecture Assignments, In-Class Quizzes and Activities, Homework Assignments
2	Students will be able to describe how DNA is organized, outline how DNA is duplicated, and describe how it is preserved.	Pre-Lecture Assignments, In-Class Quizzes and Activities, Homework Assignments, Exams
3	Students will be able to describe how DNA transcribes into RNA and describe how RNA is translated into proteins.	Pre-Lecture Assignments, In-Class Quizzes and Activities, Homework Assignments, Exams
4	Students will be able to explain how cells reproduce through DNA and nucleic acids.	Pre-Lecture Assignments, In-Class Quizzes and Activities, Homework Assignments, Exams

5	Students will be able to describe basic inheritance patterns and the chromosomal basis of heredity.	Pre-Lecture Assignments, In-Class Quizzes and Activities, Homework Assignments, Exams
6	Students will be able to explain how mutation is a source of genetic variability.	Pre-Lecture Assignments, In-Class Quizzes and Activities, Homework Assignments, Exams
7	Students will be able to describe the role of sex chromosomes in sex determination, sexual dimorphism, and chromosomal inactivation.	Pre-Lecture Assignments, In-Class Quizzes and Activities, Homework Assignments, Exams
8	Students will be able to predict the outcomes of genetic crosses.	In-Class Quizzes and Activities, Homework Assignments, Exams
9	Students will be able to describe major issues related to modern biotechnology and genetic manipulation.	Pre-Lecture Assignments, In-Class Quizzes and Activities, Homework Assignments
10	Students will be able to analyze, problem-solve, communicate, and explore different perspectives that apply to ethical issues in genetics.	In-Class Quizzes and Activities, Homework Assignments
11	Students will be able to engage in activities related to genetics such as learning how to perform gel electrophoresis, DNA manipulation, PCR, gene mapping, enzyme assays, and spectrophotometry.	Pre-Lab Quizzes, Participation and In-Class Assignments, Lab Practical Exams
12	Students will be able to analyze and interpret the data collected in the laboratory experiments.	Participation and In-Class Assignments, Lab Practical Exams
13	Students will be able to identify the differences between commercial genetic tests and medical professional genetic tests.	Pre-Lab Quizzes, Lab Practical Exams
14	Students will be able to interpret the results from paternity tests and genetic tests.	Pre-Lab Quizzes, Participation and In-Class Assignments, Lab Practical Exams
15	Students will be able to graph heritable traits to determine how much variation is due to genetic influences versus the environment.	Pre-Lab Quizzes, Participation and In-Class Assignments, Lab Practical Exams
16	Students will be able to identify and discuss controversial and ethical issues related to genetics.	Pre-Lab Quizzes, Participation and In-Class Assignments

Attach a list of the required/recommended course readings and activities:

Syllabus_BIO184Lab_Fall2024_Olsan.pdf
Syllabus_BIO184Lec_Fall2023_Olsan.pdf

Is this course required in a degree program (major, minor, graduate degree, certificate?)

Yes

Has a corresponding Program Change been submitted to Workflow?

No

Identify the program(s) in which this course is required:

Programs:
BS in Biological Science (Biomedical Sciences)
BA in Biological Science
BS in Biological Science (Clinical Laboratory Sciences)
BS in Biological Science (Ecology, Evolution, and Conservation)
BS in Biological Science (General Biology)
BS in Biological Science (Microbiology)
BS in Biochemistry
BS in Biological Science (Cell and Molecular Biology)

Does the proposed change or addition cause a significant increase in the use of College or University resources (lab room, computer)?

No

Will there be any departments affected by this proposed course?

No

I/we as the author(s) of this course proposal agree to provide a new or updated accessibility checklist to the Dean's office prior to the semester when this course is taught utilizing the changes proposed here.

I/we agree

University Learning Goals

Undergraduate Learning Goals:

Competence in the disciplines
Knowledge of human cultures and the physical and natural world
Intellectual and practical skills
Personal and social responsibility
Integrative learning

Is this course required as part of a teaching credential program, a single subject, or multiple subject waiver program (e.g., Liberal Studies, Biology) or other school personnel preparation program (e.g., School of Nursing)?

Yes

For the Council for the Preparation of School Personnel (to be filled out with assistance of your department chair):

Does this course change impact your department's currently written Program Standards Document?

No

Common Standards: In what way does this course or program change impact the currently written Common Standards document? Please include any suggested language changes:

This change does not affect the currently written Common Standards document.

Is this change in response to program or unit assessment activities?

No

Will this course introduce any new or changes to program assessments?

No

GE Course and GE Goal(s)

Is this a General Education (GE) course or is it being considered for GE?

No

Reviewer Comments:

Robin Altman (altman) (Fri, 02 Aug 2024 19:25:21 GMT): Rollback: Forgot to check "yes" for required for subject matter waiver program

Robin Altman (altman) (Fri, 02 Aug 2024 19:30:09 GMT): Rollback: Forgot Cell & Molec concentration under Programs

Key: 468