



School of Molecular & Cellular Biology

MCB 316, Fall 2023

Genetics and Disease, 4 Credit Hours

Instructor

Dr. Mary Schuler

162 ERML

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Teaching Assistant

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Class Meeting Schedule

Lectures: Mondays, Wednesdays, Fridays 10-11 in 4101 Material Sciences and Engineering Building

Discussion Sessions: Mondays 11-12 or 12-1 in 147 Loomis Laboratory

Dr. Schuler's Help Sessions: TBD via Zoom

TA Help Sessions: Thursdays 10:30-11:30 via Zoom

Course Overview and Description

MCB316 is a course aimed at explaining interactions between genetic mutations and various diseases as well as strategies being tried to correct these diseases. Special emphasis is placed on training students to read current scientific literature on these subjects and getting students to develop powerpoint presentations for delivery to the instructor, teaching assistant and fellow classmates.

Course Prerequisites

MCB251

Student Learning Outcomes

At the end of the course, through assignments, discussions, activities and assessments, students will be able to:

- Explain the transmission and expression of mutant genes within eukaryotic organisms
- Explain how genes become mutated naturally and synthetically
- Define strategies for mapping genetic defects and locating mutant genes
- Define strategies for manipulating gene expression to change the range of proteins expressed in cells and/or correct genetic defects
- Describe the genetic and molecular bases for a range of diseases including (but not limited to) cystic fibrosis, Huntington's, leukemias, retinoblastomas, neuroblastomas, etc.

Course Text/Materials Information (both required and recommended)

Principles of Genetics, Snustad and Simmons, Wiley Press 7th edition

E-text ISBN 978-1-119-22798-4

Binder Ready Version ISBN 978-1-119-14229-7

Course Website, Course Tools

Moodle site: <https://learn.illinois.edu/course/view.php?id=69178>

The links on the MCB316 Moodle site connect to individual Modules with Lecture Notes (in pdf format), pre-recorded Lecture Videos, Practice Problem Sets, Homework Problem Sets, and various places to deposit Essays and Student Powerpoint Presentations

Grading Information

Total of 10000 pts

Zoom Discussion Attendance and Participation (12 each worth 50 pts, total of 600 pts) (14 discussions in total with us accepting up to 2 absences without penalty)

Group Presentation Project (2000 pts)

Homework Problem Sets (13 each worth 100 pts, total of 1300 pts)

Student Summaries (14 each worth 12.5 pts, total of 175 pts)

Essays on Reading Assignments (3 each worth 275 pts, total of 825 pts)

Exam 1 (1600 pts), Exam 2 (1600 pts), Final exam (1900 pts)

