Fall 2020

# BIOL 352-003: Genetis

Gal Haspel

NJIT BIOLOGY

**Course Syllabus**

**FALL 2020**

# BIOLOGY 352 GENETICS
# ONLINE CLASS

| | | | |
|---|---|---|---|
| **INSTRUCTORS:** | Dr. Mary Konsolaki<br>Dr. Gal Haspel | **EMAIL:** | mary.konsolaki@njit.edu<br>haspel@njit.edu |
| **OFFICE:** | Dr. Konsolaki 973-642-4975<br>Dr. Haspel 973-596-8198 | **OFFICE HOURS:** | Dr. Konsolaki Tue-Thu 12:00-1:00pm<br>Dr. Haspel Tue 12:30-1:30 Thu 2-3pm<br>Or by appointment |
| **COURSE SCHEDULE:** | Wed-Fri 12:30-1:50pm<br>Meeting number 120 168 7127<br>Password w8xJ53JNRRj | **COURSE WEBSITE:** | https://njit.instructure.com/courses/14807 |

**ONLINE CLASS INFORMATION**
In order to enforce social distancing protocols necessary to ensure the safety of individuals attending NJIT classes, BIOL 352 will run as a synchronous online class in Fall 2020. Online learning classes will meet at the scheduled time on a WebEx Meeting session (link above). All exams for this course will also be online. Please see more information on page 3.

**ATTENDANCE**
Attendance is required and will be monitored by logging into the WebEx meeting. Students will be required to occasionally take short quizzes during class. Such quizzes will also be used to confirm attendance. If you expect to miss a class for a valid reason, please email Dr. Konsolaki or Dr. Haspel and provide documentation (mary.konsolaki@njit.edu, haspel@njit.edu)

**COURSE DESCRIPTION:** This course surveys the basic concepts of Genetics. We plan to start the course with a detailed examination of classical genetics experiments beginning with those of Mendel, followed by a study of DNA structure and manipulation. Further lectures in the course will focus on some of the details of molecular genetics, developmental genetics, and population genetics.

**OBJECTIVES**: To provide the student with: (1) knowledge of terms, concepts and theories of Genetics (2) the ability to integrate the material from multiple sources and research (3) improved critical thinking skills and the opportunity to apply genetic concepts in everyday biology-related applications

**INSTRUCTIONAL MATERIALS:** Genetics Essentials, Fourth Edition (2018) Benjamin A. Pierce. Students can purchase a 6-month subscription to the E-book, ISBN: 9781319189051 (most affordable option). Below is the link for the different options:
https://store.macmillanlearning.com/us/product/Genetics-Essentials/p/1319107222?searchText=genetics%26%23x20%3bessentials

Some additional reading may be occasionally assigned from online resources (free text) such as PubMed eBook http://www.ncbi.nlm.nih.gov/books/NBK21766/?term=Genetics

**SUPPLEMENTAL MATERIALS:** Any additional materials required for class would either be provided through Canvas (UCID required), or via web link.

**CODE OF STUDENT CONDUCT:** Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu

**REASONABLE ACCOMMODATION:** If you have a special need that may require an accommodation or assistance, please inform us of that fact as soon as possible and no later than the end of the second class meeting. Students with disabilities who require accommodations must contact Dr. Phyllis Bolling, Center for Counseling and Psychological Services (C-CAPS), Campbell Hall, (entry level), room 205, (973) 596-3420

**COURSE EVALUATION PROCEDURES:**

| GRADING | POINTS |
|---|---|
| Exam 1 | 20% (100pts) |
| Exam 2 | 20% (100pts) |
| Exam 3 (Final) | 25% (125pts) |
| Review Quizzes (3) | 10% (50pts) |
| Project | 10% (50pts) |
| Homework | 10% (50pts) |
| Attendance & Participation | 5% (25pts) |
| **TOTAL** | **100% (500pts)** |

| GRADING SCALE | |
|---|---|
| A | 90-100 |
| B+ | 85-89 |
| B | 80-84 |
| C+ | 75-79 |
| C | 65-74 |
| D | 50-64 |
| F | 0-49 |

**Extra Credit:** There will be no individualized opportunities for extra credit. There may be opportunities for the entire class during the course.

**The topics to be covered will include:**

- Introduction to Molecular Genetics
- DNA Structure and Manipulation
- Mendelian Genetics
- Sex-chromosomes and Sex-linkage
- Genetic Linkage and Chromosome Mapping
- DNA Replication and Recombination
- Molecular Organization of Chromosomes
- Human Karyotypes and Chromosome Behavior
- Microbial Genetics
- Gene Expression
- Regulation of Gene Expression
- Genomics, Proteomics and Transgenics
- Genetic Control of Development
- Mutations and DNA Repair
- Genetics of Cell Cycle and Cancer

- Mitochondrial DNA and Extranuclear Inheritance
- Population Genetics
- Quantitative Genetics

**Information on Online Exams**
NJIT policy requires that all midterm and final exams must be proctored, regardless of delivery mode, in order to increase academic integrity. Note that this does not apply to essay or authentic based assessments. In this course you will be required to use the **Lockdown Browser with Monitor connected to WebEx proctoring method** to ensure academic integrity for exams. Please see NJIT's response to questions about online proctoring here: https://www5.njit.edu/provost/response-questions-about-online-proctoring/.

**See below for more information about how exams will be proctored in this course.**
WebEx will be used to allow your instructor to proctor the exams. Your instructor will schedule a WebEx exam session and share the meeting information with you ahead of time. The exam will be in Canvas with Lockdown Browser and it will be password-protected. You can connect to the WebEx session with your phone. You can find links to download the mobile app from the App Store or Google Play Store at the bottom of [njit.webex.com] (https://njit.webex.com/webappng/sites/njit/dashboard?siteurl=njit). When your instructor is ready to start the exam, you will be provided with the exam password in the meeting so all students can begin the Canvas quiz. Your instructor will then watch you, via the web camera, as you take the exam. Students are expected to remain connected to the WebEx session until their exam is submitted. The session may also be recorded by your instructor. In order to use WebEx for proctored exams, you will need the following: * High-speed internet connection * Webcam (on a phone or tablet). The process for connecting to WebEx will be the same as when you connect for a class. Tips for ensuring a smooth experience while using WebEx: * Connect to your WebEx session before class starts. * Log into Canvas before connecting to WebEx. Questions or problems can be submitted via web form by going to: [https://servicedesk.njit.edu] (https://servicedesk.njit.edu/) and clicking on the "Report your issue online" link. You may also call the IST Service Desk with any questions at 973-596-2900.

**Respondus LockDown Browser** is a locked browser for taking assessments or quizzes in Canvas. It prevents students from printing, copying, going to another URL, or accessing other applications during a quiz. If a Canvas quiz/exam requires that LockDown Browser be used, students will not be able to take the assessment or quiz with a standard web browser.

Watch this [short video] (http://www.respondus.com/products/lockdown-browser/student-movie.shtml) to get a basic understanding of LockDown Browser. A student [Quick Start Guide (PDF)] (http://www.respondus.com/products/monitor/guides.shtml) is also available. Respondus Lockdown Browser does not work with Linux and Chromebooks at this time. Please visit the [Respondus Knowledge Base article on computer requirements ] (https://support.respondus.com/support/index.php?/Knowledgebase/Article/View/89/25/what-are-the-computer-requirements-for-installations-of-respondus-lockdown-browser) for additional information.

Download and install LockDown Browser from this link:
[http://www.respondus.com/lockdown/download.php?id=264548414] (http://www.respondus.com/lockdown/download.php?id=264548414) * [] (http://www.respondus.com/lockdown/download.php?id=264548414)
Once your download and installation has finished, the Lock Down Browser will automatically launch (and close) as needed with the Quizzes. For this course, we will use the "New" quizzes format.

**COURSE SCHEDULE**

**Schedule:** Dates listed by week; lectures will meet twice every week, unless otherwise noted. Homework assignments will be due on Friday midnight, on Canvas and review quiz assignments will be due on Sunday midnight. Please note that this is the proposed schedule and is subject to change. A more detailed schedule will be continually updated via the course Canvas site.

| Week of | Lecture Topic | Assignments Due |
|---|---|---|
| 8/31 | Introduction to Genetics/Chromosomes | No HW |
| 9/7 | Basic principles of heredity | HW1 (Canvas) |
| 9/14 | Sex-linked traits/Bacterial Genetics | HW2 (Canvas) |
| 9/21 | Extensions & modifications of Mendelian Genetics/Human Genetics | Review Quiz 1 on Canvas |
| 9/28 | Exam 1 (see info on page 3) / Linkage & recombination | HW3 ( Canvas ) |
| 10/5 | Mapping of human genes/Chemical nature of DNA *Project released* | HW4 (Canvas) |
| 10/12 | Chromosome structure/DNA replication | HW5 ( Canvas ) |
| 10/19 | Transcription/Central Dogma/Viruses | HW6 / *Project Assignment 1* (Canvas ) |
| 10/26 | Translation/Epigenetics/Cancer | Review Quiz 2 on Canvas |
| 11/2 | Molecular Techniques / Exam 2 (see info on page 3) | HW7 (Canvas ) |
| 11/9 | Bacterial & Eukaryotic gene regulation | HW8 (Canvas ) |
| 11/16 | RNA regulation/Thu No Class (Thanksgiving) | HW9 / *Project Assignment 2* (Canvas ) |
| 11/23 | Mutations/Transposable elements | HW10 (Canvas ) |
| 11/30 | Quantitative/Populations/Developmental genetics | Review Quiz 3 on Canvas |
| 12/7 | The-omics era/Review | *Project Assignment 3* (Canvas ) |
| 12/14 | Exam 3 (Final) – see info on page 3 | Final Exam Schedule will be posted here: http://www5.njit.edu/registrar/exams/ |