

INTRODUCTION TO CANCER

01:447:245; SPRING 2026

Professor: Dr. Tara Cominski

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[LinkedIn Profile](#)

CLASS MEETS TUESDAY & FRIDAY 10:20-11:40 AM; ENGINEERING B-120, BUSCH CAMPUS

- Link to the Rutgers map: <https://maps.rutgers.edu/>
- **Regular class attendance is expected!!!!**
- All course materials will be available through CANVAS

STUDENT SUPPORT HOURS (VIRTUAL AND IN-PERSON)

OFFICE LOCATION: BUSCH LAB CENTER RM 101

- ⇒ **Tuesday 12:00 – 1:30 PM**
- ⇒ **Wednesday 11:30 AM – 1:00 PM**
- ⇒ **VIRTUAL - Thursday 4:30 pm – 5:30 pm (email me to arrange)**
- ****If you would like to meet outside of these times, please email me! I am also available right before/after class**
- **Office Location:** Middle of the building, down the small hallway near the bathroom. Walk toward the exit door in the middle of the building, and my office is immediately to your right.
- **[Virtual Office Link](#)**

Prerequisites

General Biology 119:115-116 or 119:101-102

Course Description

Introduction to Cancer provides an overview of biomedical aspects of malignancy as deviations from the normal biological processes. It builds upon some topics covered in pre-requisite courses, including molecules, cells, tissues, and organisms; and expands on cell biological concepts. The course reviews how specific alterations in normal genetic, cellular, and physiological processes are altered in cancer, and how the human systems respond to cancer cells and tumors. The clinical applications of these facts and concepts for diagnosis, prognosis, prevention, and personalized therapy are discussed. Some specific cancer types are selected as examples, such as breast cancer, prostate cancer, colon cancer, melanoma, leukemia, and others. Current unmet medical challenges and possible future solutions are included.

Subjects that will be addressed during the course may include:

- Biology and genetics of cells and organisms
- The nature of cancer
- Cellular and viral oncogenes
- Oncoproteins: receptors, signal transduction, cell cycle control
- Tumor suppressor genes
- Tumor progression and tumor evolution
- Tumor heterogeneity and tumor microenvironment
- Invasion and metastasis
- Cancer Treatment

REQUIRED TEXTS AND COURSE MATERIALS

- **A notebook and pen/pencil to complete in-class participation activities!!**
- **Recommended: The Biology of Cancer (3rd edition)**, Robert Weinberg; ISBN: 978-0-393-69021-7 (paperback); hardcover and loose-leaf versions are also acceptable; the 2nd edition can also be used as a reference
- A copy of the textbook is also available through university libraries and on reserve at the Library of Science and Medicine on Busch Campus; at front desk under "Cominski"

TECHNICAL / TECHNOLOGY REQUIREMENTS

- **Mobile device or laptop: Students must have access to their own personal laptop or tablet during class.**
- **Students will regularly use Canvas to complete in-class quizzes, activities/assignments, and exams.**

- In addition, other applications may be used to allow students to actively engage in class and enable the professor to assess student understanding.
- If you do not have the appropriate technology for financial reasons, please email the Dean of Students at deanofstudents@echo.rutgers.edu for assistance. If you are facing other financial hardships, please visit the Office of Financial Aid: <https://financialaid.rutgers.edu/>.
- Please visit the Rutgers Student Tech Guide website for resources: <https://it.rutgers.edu/technology-guide/students/#new-brunswick>

LEARNING GOALS

Course Satisfies Departmental Learning Goals:

- Knowledge specific goals: Know terms, concepts and theories in genetics.
- Integrate material from multiple courses and research. That is, to think holistically and to see the whole as well as the parts.

TEACHING PHILOSOPHY/TEACHING STYLE

The focus of my teaching is to promote understanding and appreciation of complex biological concepts. I achieve this through the pedagogical methods listed below.

- All lecture materials will be available on Canvas
- Additional resources will be provided to supplement the lecture material
 - Links to videos
 - Links to informative websites, i.e. NCI
 - Exam review sheets and practice questions
 - Review questions are provided at the end of most lectures
 - Journal articles
 - Excerpts from text/journal articles
- Class Design
 - PowerPoint lecture emphasizing the explanation of figures and pictures to enhance the ability to integrate individual concepts into a broader understanding.
 - In-class activities/assignments
 - Drawing
 - Open-ended
 - Group activities
 - Multiple-choice questions
 - Questions to encourage critical thinking about the concepts introduced in the lecture.

- Canvas quiz after each lecture
- Homework assignments
 - Video and PlayPosit quizzes
 - Journal article assignments
 - Assignments to extend concepts, i.e. drug mechanism of action
- Exams and quizzes are delivered through Canvas and include figures from the lectures. The questions evaluate comprehension and interpretation of these figures.

GRADING SCALE

- ⇒ A = 92 and above
- ⇒ B+ = 87-91
- ⇒ B = 80-86
- ⇒ C+ = 75-79
- ⇒ C = 70-74
- ⇒ D = 60-69
- ⇒ F = 59 or below
- ⇒ Warning grades will be entered through the Regis grading system if applicable
- ⇒ Grades will be calculated in the Canvas gradebook. This information will be available to students throughout the semester. If you have a question about a grade, please ask as soon as possible. I do make mistakes!
- ⇒ ***Letter grades will be based on the total percentage calculated in Canvas, using the scale above; I will not round up!***

ASSESSMENT / GRADING COMPONENTS

Weighting of Assessments

- ⇒ The final course grade will be determined by the following criteria:
 - **70%- Exams**
 - 4 exams – equally weighted
 - Final Exam (Exam 4) will be given during the final exam period
 - Semi-cumulative
 - **10% - In-Class Assignments/Activities** (Class participation/attendance)
 - Assignments will be given during most classes, with consideration for religious observances and add/drop period.
 - **The 2 lowest in-class assignment grades will be dropped**
 - Due dates will vary depending on the activity and must be submitted by the time specified for full credit

- **Some**, not ALL, assignments can be submitted after the specified time, but before 11:59 PM that night, for partial credit (20-point deduction)
- Assignments not submitted by 11:59 PM or the specified deadline will not be accepted, resulting in a **ZERO** being given.
- **IN-CLASS ASSIGNMENTS CANNOT BE MADE UP FOR ANY REASON!!!**
- **20%- Quizzes/Homework Assignments**
 - A graded quiz will be given through Canvas for each lecture (depending on the size of the lecture, a quiz may combine two or more lectures)
 - Homework assignments will be given for select topics

SCHEDULE OF TOPICS

Updates to this schedule will be made on Canvas

Date	Topics Covered	Class Plan
Week 1: 1/20 & 1/23	⇒ Course Introduction ⇒ Syllabus and Course Expectations ⇒ Chapter 1: The Biology and Genetics of Cells and Organisms	Welcome to Class Discussion Board Student Introductions Syllabus Quiz
Week 2: 1/27 & 1/30	⇒ Chapter 1: The Biology and Genetics of Cells and Organisms ⇒ Magic Bullets Video	Lecture In-class activity/assignment Canvas Quiz Play Posit Quiz and Video
Week 3: 2/3 & 2/6	⇒ Chapter 2: The Nature of Cancer	Lecture In-class activity/assignment Canvas Quiz
Week 4: 2/10 & 2/13	⇒ Chapter 3: Tumor Viruses ⇒ Review for Exam 1	Lecture In-class activity/assignment Canvas Quiz Virus Review Article
Week 5: 2/17 & 2/20	⇒ Exam 1 ⇒ Chapter 4: Cellular Oncogenes	**EXAM 1 TUESDAY 2/17** Lecture In-class activity/assignment
Week 6: 2/24 & 2/27	⇒ Chapter 5: Growth Factors, Receptors, and Cancer	Lecture In-class activity/assignment Canvas Quiz
Week 7: 3/3 & 3/6	⇒ Chapter 6: Cytoplasmic Signaling Circuitry Programs Many of the Traits of Cancer ⇒ Review for Exam 2	Lecture In-class activity/assignment Canvas Quiz
Week 8: 3/10 & 3/13	⇒ Exam 2 ⇒ Chapter 7: Tumor Suppressor Genes ⇒ Blind Men and the Elephant Video	**EXAM 2 TUESDAY 3/10** Lecture Video and Play Posit Quiz
3/16-3/20	SPRING BREAK	ENJOY!!

Week 9: 3/24 & 3/27	⇒ Chapter 8: pRb and Control of the Cell Cycle Clock	Lecture In-class activity/assignment Canvas Quiz
Week 10: 3/31 & 4/3	⇒ Chapter 9: p53 and Apoptosis	Lecture In-class activity/assignment Canvas Quiz
Week 11: 4/7 & 4/10	⇒ Exam 3 Review	**EXAM 3 FRIDAY 4/10**
Week 12: 4/14 & 4/17	⇒ Chapter 11: Multi-Step Tumorigenesis ⇒ Achilles Heel Video	Lecture In-class activity/assignment Canvas Quiz Play Posit Quiz and Video
Week 13: 4/21 & 4/24	⇒ Chapter 14: Invasion and Metastasis ⇒ Chapter 15: Tumor Immunology and Immunotherapy	Lecture In-class activity/assignment Canvas Quiz
Week 14: 4/28 & 5/1	⇒ Chapter 16: The Rational Treatment of Cancer ⇒ Review for Final Exam	Lecture In-class activity/assignment Canvas Quiz Cancer Therapy Assignment
5/5 & 5/6	Reading Days	No Classes
Final Exam Week: 5/7-5/13	Final Exam – Semi-Cumulative	**FINAL EXAM ** Date will be updated on Canvas

POLICIES

ATTENDANCE, PARTICIPATION AND MISSED ASSIGNMENTS

- **Students are expected to attend class regularly!!!**
- Quizzes, review questions, and other activities to support the lectures will take place during each class and will count toward the final grade.
- **In-class activities and assignments enhance student learning and are necessary for success in this course.**
 - See the “Grading Components” section for more information
 - These assignments serve as the class participation/attendance portion of your grade
 - **Students are not entitled to a perfect score for this portion of the grade; this system is designed to reward students who attend class regularly, rather than penalize those who miss some classes.**
- If you need to miss class or need extra time to complete an assignment, please email me ahead of time, and we will work together to construct a plan to make up the missed work.

- If you do not communicate with me about a missed quiz, exam, or assignment and contact me well after the due date, **a make-up will not be possible.**
- **Make-ups for Quizzes and Exams are at the professor's discretion and may not be granted!**
- Students with prolonged health and/or financial issues impacting their academics and well-being over an extended period should contact the Dean of Students at deanofstudents@echo.rutgers.edu.
- [Self-reporting Absence Application Link](#)

EXPECTATIONS:

For Students:

- Be fully (well at least almost fully) present/engaged
- Be respectful – one voice, but it is okay to disagree!
- Ask questions
- Share your experiences and expertise
- **Attend class regularly – Why do you think I care about this??**
- Make mistakes, but own them; I do it all the time...
- Be late (sometimes)
- Miss an assignment
- Miss a class
- Be interested

For the Instructor:

- Be respectful
- Share experiences and expertise
- Make mistakes, but own them
- Be prepared
- Be responsive
- Be late (sometimes)
- Miss an email
- Forget to post a quiz or assignment
- Miss a class
- Be fair
- Provide the opportunity and environment for **ALL** students to **learn**
- Be engaged and enthusiastic

DISABILITY ACCOMMODATIONS

- To receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus

where you are officially enrolled, participate in an intake interview, and provide documentation.

- Please see me before or after class to confirm that I have received your accommodation form and to discuss expectations.
- Please review the policies and procedures of the Office of Disability Services website: <https://ods.rutgers.edu> for additional information

ACADEMIC INTEGRITY

- Please familiarize yourself with the University website on Academic Integrity: [Academic Integrity Policy Link](#)
- Rutgers University takes academic dishonesty very seriously. By enrolling in this course, you assume responsibility for familiarizing yourself with the Academic Integrity Policy and the possible penalties (including suspension and expulsion) for violating the policy. As per the policy, all suspected violations will be reported to the Office of Student Conduct. Academic dishonesty includes (but is not limited to):
 - Cheating
 - Plagiarism
 - Aiding others in committing a violation or allowing others to use your work
 - Failure to cite sources correctly
 - Fabrication
 - Using another person's ideas or words without attribution (**this includes AI**), including re-using a previous assignment Unauthorized collaboration
 - Sabotaging another student's work

If you are ever in doubt, consult your instructor.

STUDENT SUPPORT AND MENTAL WELLNESS

⇒ **Here is a list of Rutgers resources to support students in their academic success and mental wellness.**

- Student Success Essentials: <https://success.rutgers.edu>
- Student Support Services: <https://www.rutgers.edu/academics/student-support>
- The Learning Centers: <https://rlc.rutgers.edu/>
- The Writing Centers (including Tutoring and Writing Coaching): <https://writingctr.rutgers.edu>
- Rutgers Libraries: <https://www.libraries.rutgers.edu/>
- Office of Veteran and Military Programs and Services: <https://veterans.rutgers.edu>
- Student Health Services: <http://health.rutgers.edu/>

- **Counseling, Alcohol and Other Drug Assistance Program & Psychiatric Services (CAPS):** <http://health.rutgers.edu/medical-counseling-services/counseling/>
- **Office for Violence Prevention and Victim Assistance:** www.vpva.rutgers.edu/