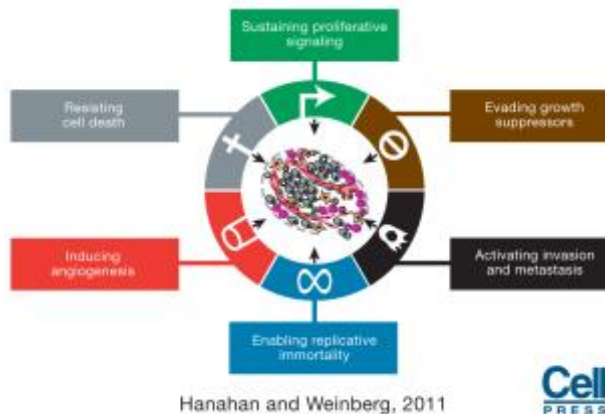


BIO5640-Cancer Biology
Tuesdays and Thursdays 2:30PM - 3:45PM
0317 State Hall
Class Starts: 08-31-17
Class Ends: 12-5-17



Hanahan and Weinberg, 2011
The hallmarks of cancer

Course Info:

Course Number and Title: BIO5640, Cancer Biology
Semester Hours: 3 credit hours
Semester and Year: Fall 2017

Course Coordinator: Dr. Rafael Fridman
Office: 8200 Scott Hall, School of Medicine
Telephone: 313-577-1218
Email Address: aa2721@wayne.edu
Office Hours: Tuesdays, noon-1:00 PM

Course Instructors:

<u>NAME</u>	<u>EMAIL</u>	<u>TITLE</u>
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Dr. MICHAEL DOMINELLO	mdominel@med.wayne.edu	Assistant Professor of Radiation Oncology

Course Description:

Cancer Biology (BIO5640) is an introductory course on the current molecular, cellular, and clinical aspects of human cancer for students without prior exposure to the topic. The goal of this course is to cover current concepts and knowledge of cancer, including cancer research and cancer treatment; it will educate students on various genetic and molecular changes normal cells undergo during transformation into malignant cancer cells. This course will explore the cellular and molecular mechanisms underlying cancer development with the aim of understanding how changes in the normal growth and division processes lead to the formation of tumors.

The course will focus on 1) the origins of cancer including genetic and epigenetic factors initiating molecular and histopathological changes in normal cells/tissues leading to malignant transformation, invasion and metastasis; 2) understanding current concepts of the molecular and cellular processes contributing to cancer development including the tumor microenvironment, inflammation, the immune system and cancer origin involving stem cells; 3) current scientific approaches to decipher the molecular make up of each cancer type and the recent advances for the treatment of cancer, and 4) current approaches for cancer treatment in the clinic.

Course Objectives/Learning Outcomes:

At the completion of this course, students will have a basic understanding of the current concepts and knowledge on the biology of cancer and the basic mechanisms that contribute to disease development and progression. Students will be familiarized with the latest advances in cancer research and in anti-cancer therapies.

Course Pre-requisites:

BIO 2600 Introduction to Cell Biology
 BIO 3070 Genetics
 BIO 3100 Cellular Biochemistry
 Grades of C-minus or above in these courses are required.

Course Organization:

The course will consist of 23 lectures given by a team of WSU and Karmanos cancer researchers and clinicians with a solid track record in basic cancer research, clinical pathology, and oncology. Each lecturer will give 2-3 lectures. Lectures will focus on a particular topic (see Schedule) and will provide all the basic information and concepts necessary to understand the biological process or condition being taught. Discussion and questions are welcome during the lecture presentations. We strongly encourage students to ask questions if there are any unclear concepts.

Required and Recommended Reading Materials:

Required Reading: Each lecturer will provide an article review in the topic of their lectures, plus the slide presentation. The reviews and the class lecture/slides, together constitute the **material that will be covered in the exams**. Material not covered in the class will not be a part of the exam. Because the exams will be based on the material discussed in the class, attendance is critical. The PDF files of the reviews and the PowerPoint slides will be available from Blackboard before the lecture.

Recommended Reading: As a supplement to the lectures and reviews, and to gain more basic information, we recommend that you use: **The Biology of Cancer, Second Edition, by Robert A. Weinberg**. ISBN 978-0815342205. The book will help you in case you need more information. Lecturers will direct you to the parts in the textbook that you will find helpful for that particular class, if necessary. However, the textbook will not be a part of the exam questions.

Exams:

There will be **four multiple choice exams** on the following days:

Exam I: Tuesday September 26

(Pathology, Oncogenes/Suppressors, Signaling Networks)

Exam II: Tuesday October 17

(Tumor Microenvironment, Angiogenesis, Inflammation, Metastases)

Exam III: Tuesday November 7

(Cancer Stem Cells, Tumor Immunology, Immunotherapy)

Exam IV: Thursday December 7

(Viral Cancers, Radiation Therapy, Cancer Genomics, Cancer Research, Current Therapies)

Each exam will be comprised of 50 multiple choice questions total (divided among the topics indicated). Each question will be worth 2 points, and thus each exam will represent 25% of your grade. The exams are independent of each other, and thus there is no final exam. You will have 75 min to complete your exam.

Grading:

Each exam will have a maximum score of 100 points (2 points X 50 questions). Based on four exams, the maximum total points will be 400. Thus, your final grade will be calculated as follows:

94.5 – 100% (378-400 points) A
89.5 – 94.4% (358-377 points) A-
86.5 – 89.4% (346-357 points) B+

82.5 – 86.4%	(330-345 points)	B
79.5 – 82.4%	(318-329 points)	B-
76.5 – 79.4%	(306-317 points)	C+
72.5 – 76.4%	(290-305 points)	C
69.5 – 72.4%	(278-289 points)	C-
65.5 – 69.4%	(262-277 points)	D+
61.5 – 65.4%	(246-261 points)	D
58.5 – 61.4%	(234-245 points)	D-
0 – 58.4%	(000-233 points)	F

If the score of the 75th percentile is less than 378 points (94.5%), the final grades will be standardized against the 75th percentile grade in the class. Namely, all scores will be adjusted by adding the number of points necessary for the 75th percentile grade to equal 378 points (lowest boundary for an "A"). For example, if the 75th percentile score is 365, then all scores will be adjusted by adding 13 points to the total score for the course.

How will we compute the 75th percentile score? Once all the four exams are graded (at the end of the semester), all students will be sorted by total score, in descending order. The 75th percentile score is the score of the person that is at the 1/4th position from the top of the list. For example, if the class has 32 students, the 8th best score ($1/4 * 32 = 8$) will represent the 75th percentile.

Make-up Exams:

if for unforeseen circumstances you have to miss an exam, there will be an opportunity to do a **one-time only make-up exam**. The make-up exam will be given within one week of the date of the official exam in that cycle. Only one make-up exam will be allowed. If you miss a second exam, you will get a 0, no exceptions. Because of the make-up exams, hardcopies of exams and grades will be given to all students a week later from the date of the official exam or after the make-up exam of that cycle.

Logistics: Students must bring photo identification, preferably the WSU OneCard, to each examination along with pencils. No electronic devices of any kind are allowed; cell phones and pagers are required to be turned off. No talking or communication among students is allowed during examinations. Students will not be allowed to leave the room during the exam; once a student has left the room, he or she will not be allowed to return. Students who arrive to the exam after the first student has completed the exam and left the room will not be permitted to write the exam.

Corrections: Students will be given one week after an examination has been handed back to discuss a score. Corrections and inquiries about specific exam questions must occur in person during office hours.

Attendance:

Attendance will be monitored. We strongly recommend that you attend all lectures because participation in class is critical for the learning process. Exams will be based on what it is taught in the class plus the review.

Withdrawal Policy:

1. You may withdraw from the class and receive your tuition back through **September 13**. Classes dropped will not appear on your Academic Record.

2. From **Sep 14 to Sep 27**, you may withdraw and the course will not appear on your transcript, but you will be liable for tuition.

3. From **Sep 28 to Nov 12**, Instructor approval is required to withdraw from classes. In Academics: select "Course Withdrawal" from the Registration Menu under Student Resources; *****SMART Check***** is required. You will receive a grade of WF or WP (withdrawal failing, withdrawal passing). Your grade (WP or WF) will be determined by your test grade or grades at the time. Note that if you did not take an exam that was given up until the time of withdrawal, your score for that exam is 0. The WP grade will be given for grades of 69.5% and higher. The WF grade will be given for grades of less than 69.5%.

4. Last day to request Course Withdrawal is **Nov 12**. Students who do not complete the semester will receive a grade of F if they do not withdraw from class by Nov 12. "Incomplete" grades will not be issued to students in poor standing who are seeking an alternative to a late drop.

Professional Ethics and Academic Integrity:

Wayne State University students are expected to adhere to the highest standards of professionalism and integrity in keeping with the University values for the dignity of each person and intellectual inquiry. Student academic dishonesty refers to behavior that may include: plagiarism, cheating, fabrication, falsification of records or official documents, intentional misuse of equipment or materials (including library materials), and aiding and abetting the perpetration of such acts. The preparation of reports, papers, and examinations, assigned on an individual basis, must represent each student's own effort. To acknowledge that most, if not all, students do not cheat, the following policy will be strictly observed in accordance with the University policy on cheating: any individuals caught cheating will automatically receive a grade of "F" (score of zero points) for at least the exam, with no opportunity to replace that score, and up to/including failing the class and expulsion from Wayne State University. Charges may be filed in accordance with the University policy on Academic Honesty (<http://www.doso.wayne.edu/judicial/academic-integrity.htm>).

Classroom Etiquette:

Professional behavior is expected during lecture, including but not limited to respecting your classmates by: arriving punctually, turning off cell phones, and listening in class. Questions and dialogue with the Lecturers in regards to topics covered in class are encouraged. All students are expected to show respect through language and attitude towards Professors and fellow students.

Students with Disabilities and Other Accommodations:

If you have a physical or mental impairment that may interfere with your ability to successfully complete the requirements for this course, you are invited to contact Educational Accessibility Services (577--1851) to discuss "appropriate accommodations on a confidential basis".

Due to the variety of religious affiliations of the Wayne State University student body and faculty, the Academic Calendar makes no provisions for religious holidays. However, it is University policy to respect the faith and religious obligations of the individual. Students with classes or examinations that conflict with their religious observances are expected to notify Prof. Fridman in writing well in advance, no later than two weeks before the date, so that mutually agreeable alternatives may be worked out.

University Closures:

On Thanksgiving Day (Nov 23) there will be no class. Other potential University closures (due to inclement weather or other unforeseen events) will be publicized through the University.