

BIO5640 – Cancer Biology
Wayne State University
Course Syllabus
Winter 2017

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Office Hours

Tuesday 12-2pm (Main Campus);
Wednesday 1-3pm (Medical Campus);
& by appointment

Course Information

Meeting Date & Time: *Tuesdays & Thursdays, 2:30-3:45pm*

Location: *State Hall, Room 0106*

Section: 001

Course Credits: 3 credit hours

Course Overview & Description

Welcome to BIO5640 Cancer Biology. 1,685,210 new cancer cases and 595,690 cancer deaths are projected to have occurred across the United States in 2016. Although the overall cancer death rate has dropped over the last two decades, cancer currently ranks as the second leading cause of death nation-wide. In fact, 1 in 2 men and 1 in 3 women in the United States has a lifetime probability of developing invasive cancer. BIO5640 seeks to provide you with an introduction to the molecular biology and cellular hallmarks of cancer, and an integrated analysis of cancer and pathology, etiology and cutting-edge clinical therapies.

Course Learning Outcomes. After completion of Cancer Biology, students will be able to describe the hallmarks of cancer and basic concepts of the biology of carcinogenesis, as well as recognize the complexities as well as diversity and translational capacity of neoplastic diseases.

In order to achieve the course objectives, the student will:

- Broaden knowledge in cancer and current biological research;
- Comprehend the biological capacities acquired during the multi-step development of human tumors;
- Convey biological concepts in written format;
- Interpret results of experiments and analyses in scientific studies;
- Understand the approach to translate research discoveries from laboratory bench to patient bedside;
- Develop an insight into how these cancer hallmarks impact the development of novel therapeutics and clinical treatments in the emerging era of personalized medicine.

If you have any questions about the course, do not hesitate to contact me.

Requirements

Attendance at lectures is expected; attendance and participation are important for learning the course material. Attending and participating in class may be looked upon favorably when time to turn in final grades. Every effort will be made to provide lecture slides and scientific research papers on Blackboard prior to class.

Required Text: *The Biology of Cancer*, Second Edition, by Robert A. Weinberg. ISBN 978-0815342205

Course Website

<http://blackboard.wayne.edu>

Class announcements, lecture course materials, and results of examinations will be posted on the Wayne State University Blackboard System.

Course Prerequisites

Students enrolled in this course should have completed the prerequisite courses: BIO 2600 Introduction to Cell Biology, BIO 3070 Genetics, and BIO 3100 Cellular Biochemistry, with grades of C-minus or above; or have received consent from Professor Holowatyj.

Students who have questions regarding these prerequisites should see Prof. Holowatyj or one of the Undergraduate Advisors in the Department of Biological Sciences during the first week of class.

Essay Bank

The course will have nine written assignments, entitled the essay bank. These written assignments should be completed, in writing, prior to arriving to class for which they are due. If an assignment is not turned in at the beginning of the class period for which it is assigned, it is able to be turned in within one week for a maximum of half-credit. If an assignment is more than one week past the assigned due date, it will not be accepted.

Essay bank questions are graded based on accuracy and/or completion. Students have one week from the date that the assignment is returned back to inquire, in person during office hours or by appointment, about specific questions and corrections to grading. These written assignments comprise 200 points of the total final grade in this course.

Examinations

There will be four written, closed-book midterm examinations (inclusive of the final examination). Students will have 75 minutes to write each exam. All examinations will require written responses. Missed exams will be scored for zero points, unless arrangements are made in advance or a valid excuse is documented. In this case, the missing exam score will be made up by doubling the score earned on Exam IV (Final). Each examination counts for 200 points of the total final grade.

There are no make-up exams. If the score of your first examination (Exam I) is lower than all individual scores of your second, third, and fourth examinations (Exams II, III and IV), then the average of *all four* examination scores will be used to replace the score of Exam I.

This option is only available to a student that writes all four examinations and is only offered for Exam I.

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, with the exception of Exam IV (Final). Students will only be given 1 to 2 days to discuss the Exam IV score due to the University's requirement regarding the submission of final course grades. Corrections and inquiries about specific exam questions must occur in person during office hours or by appointment.

FINAL EXAM SCHEDULE: Please note that Exam IV is scheduled during the final exam period as designated in the Schedule of Classes for the Winter 2017 term. No other time will be available to write the exam, and *no exceptions* will be made for conflicts.

Pop Quizzes

There will be an undisclosed number of pop quizzes during the course of the semester. The purpose of these optional, extra credit quizzes is to encourage timely textbook and scientific paper readings, comprehension of course material, attendance at lectures, and staying up to date in class. If you miss a pop quiz, you will receive zero points for that quiz. *Make-ups will not be offered for quizzes missed, no matter what the excuse.* Pop quizzes are graded based on accuracy, and account for 35 extra credit points of the total final grade.

Grading

Course grades will be based on a 1000 point scale, comprised of:

Essay Bank	200 points
Exam I	200 points
Exam II	200 points
Exam III	200 points
Exam IV (Final)	200 points
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COURSE TOTAL	1000 points
Pop quizzes	+35 points

Letter grades will be calculated given the following scale:

A	93.50-100	(935-1000 points)
A-	90.00-93.4	(900-934 points)
B+	87.50-89.9	(875-899 points)
B	82.50-87.4	(825-874 points)
B-	80.00-82.4	(800-824 points)
C+	77.50-79.9	(775-799 points)
C	72.50-77.4	(725-774 points)
C-	70.00-72.4	(700-724 points)
D+	67.50-69.9	(675-699 points)
D	62.50-67.4	(625-674 points)
D-	60.00-62.4	(600-624 points)
F	0.00-59.9	(0-599 points)

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 Professor Holowatyj are, of course, encouraged.

All students are expected to show respect through language and attitude towards Professors and fellow students. Students are encouraged to discuss differences of opinion with one another, respectfully; disrespectful students will be asked to leave the lecture and will lose opportunity to submit any missed assignments.

Academic Integrity

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>).

Academic Accommodations

If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. The SDS telephone number is 313-577-1851 or 313-577-3365 (TTY: telecommunication device for the deaf; phone for hearing impaired students only). The SDS e-mail address is: studentdisability@wayne.edu.

Once you have your accommodations in place, please contact me and I am glad to meet with you privately to discuss your needs. Please be aware that a delay in getting this documentation may also delay the facilitation of your needed accommodations. Students who are registered with Student Disability Services should present the required test permit to Professor Holowatyj at least one week in advance of the examination. Services and accommodations cannot be guaranteed if students choose not to follow the procedures for registering with Student Disability Services in a timely manner. Accommodations and services can be revisited as needed, but *they are not retroactive* and unfortunately cannot be guaranteed if procedures are not followed with reasonable, advanced notice.

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. Holowatyj in writing well in advance, no later than two weeks before the date, so that mutually agreeable alternatives may be worked out.

University Closures

University closures will be publicized through: the University Newline: 313-577-5345; WSU Homepage (www.wayne.edu); WSU Pipeline (www.pipeline.wayne.edu); WDET-FM (Public Radio 101.9), and other local radio and television stations.

If an exam is scheduled on a day and time when the University is officially closed, the exam will be held during the next scheduled lecture or as indicated on the class Blackboard site.

Add & Drop Information

The last day for late registration and second week course additions is January 23, 2017.

I encourage you to get help instead of withdrawing; this will save you money and help you graduate sooner. If you must withdraw, it must be initiated by the student through the registrar’s office via Pipeline, not by the Professor.

Prof. Holowatyj will assign the withdrawal grade based on the following WSU policies and rules regarding grade assignment, repeating and withdrawing from classes:

1. Students who drop the course by January 23, 2017 are eligible for full tuition refund.
2. The last day you can drop this course and have no record on your transcript is February 5, 2017.
3. Students who request course withdrawals by March 26, 2017 (last day to withdraw) will receive one of these notations:

“WP” Withdrawal with a passing grade earned to date.

“WF” Withdrawal with a failing grade earned to date.

“WN” Withdrawal never attended, or no graded work to date.

Students who do not complete the semester will receive a grade of F if they do not withdraw from class by March 26, 2017. “Incomplete” grades will not be issued to students in poor standing who are seeking an alternative to a late drop. University grading policies can be found at: <http://sdcl.wayne.edu/RegistrarWeb/Registrar/policies.htm>

Technology Resources

The University recognizes that the Internet provides unique opportunities to participate in interactive discussions and share information using a wide variety of social media such as Facebook, Twitter, blogs and wikis. If your social media use would violate any of the University's policies in another forum, it will also violate them in an online forum. You should be aware, as a student, of the University's Policy 00-1 "Acceptable use of information technology resources" which can be found at <http://wayne.edu/policies/acceptable-use/>.

This policy prohibits, among other things, the use of the University network services for sending messages that are malicious or that a reasonable person would find to be harassing. Any violation of this University policy could result in charges against the student under the Student Code of Conduct. As a student at Wayne State University, you should also be aware of the following guidelines/best practices regarding the use of social media:

When using social media, you are speaking on your own behalf in your social media postings. You are personally responsible for what you communicate. You cannot control your audience. If you identify yourself as a Wayne State student, you must include a disclaimer that your views are your views alone and do not represent the view of the University. There is no such thing as a private comment on the Internet. Be mindful that what you publish will be public for a long time. Search engines can turn up posts and pictures years after the publication date. Comments can be forwarded or copied. Archival systems save information even if you delete a post. *Keep this in mind before you post.*

You should not post confidential information about Wayne State, its students, its faculty, its employees, or its alumni. You should not discuss a situation involved named or pictured individual(s) on a social media site without the individual's permission. You should not post anything that you would not present in any public forum. Use good ethical judgment. Do not use copyrighted photos or materials without gaining permission from the source prior to use and properly crediting the source. Individual bloggers have been held liable for commentary deemed to be copyright infringement.

Miscellaneous

Information on this syllabus can be subject to change, so please pay attention to weekly course announcements to stay informed of any changes. Please ensure you have access to your Wayne State email account for emails sent via Blackboard.

Any specific issue not covered by this syllabus will be resolved using University policies. Disputes that cannot be resolved by following the guidelines presented in this syllabus will be resolved by following University "Student Due Process" guidelines.

BIO5640 Cancer Biology: Course Schedule

<i>Day</i>	<i>Date</i>	<i>Lecture Title</i>	<i>Essay Bank</i>
Tues	Jan 10	CBio Basics & Definitions	
Thurs	Jan 12	Etiology & Epidemiology of Cancer	
Tues	Jan 17	The Cellular Hallmarks of Cancer	
Thurs	Jan 19	Hallmark 1. Breast Cancer	I
Tues	Jan 24	Hallmark 1. Sustained Proliferative Signaling	
Thurs	Jan 26	Hallmark 2. Prostate Cancer	II
Tues	Jan 31	Hallmark 2. Resisting Cell Death	
<i>Wed</i>	<i>Feb 1</i>	<i>Discussion Session, Exam I</i>	
Thur	Feb 2	Exam I	
<i>Sun</i>	<i>Feb 5</i>	<i>Last Day to Drop Course (will not appear on Academic Record)</i>	
Tues	Feb 7	Hallmark 3. Lymphoma & Hematological Malignancies	
Thurs	Feb 9	Hallmark 3. Enabling Replicative Immortality	
Tues	Feb 14	Hallmark 4. Cancers of the Colon & Rectum	III
Thurs	Feb 16	Hallmark 4. Genome Instability & Mutation	
Tues	Feb 21	Hallmark 5. Kidney Cancer	IV
Thurs	Feb 23	Hallmark 5. Evading Growth Suppressors	
<i>Mon</i>	<i>Feb 27</i>	<i>Discussion Session, Exam II</i>	
Tues	Feb 28	Exam II	
Thurs	Mar 2	Hallmark 6. Ovarian Cancer	
Tues	Mar 7	Hallmark 6. Avoiding Immune Destruction	
Thurs	Mar 9	Hallmark 7. Breast Cancer, contd.	V
<i>Tues</i>	<i>Mar 14</i>	<i>Spring Break</i>	
<i>Thurs</i>	<i>Mar 16</i>	<i>Spring Break</i>	
Tues	Mar 21	Hallmark 7. Tumor-Promoting Inflammation	VI
Thurs	Mar 23	Hallmark 8. Cancers of the Lung and Bronchus	
<i>Sun</i>	<i>Mar 26</i>	<i>Last Day to Request Course Withdrawal</i>	
Tues	Mar 28	Hallmark 8. Deregulating Cellular Energetics	VII
<i>Wed</i>	<i>Mar 29</i>	<i>Discussion Session, Exam III</i>	
Thur	Mar 30	Exam III	
Tues	Apr 4	Hallmark 9. Genitourinary Cancers	
Thurs	Apr 6	Hallmark 9. Inducing Angiogenesis	
Tues	Apr 11	Hallmark 10. Pancreatic Cancer	VIII
Thurs	Apr 13	Hallmark 10. Activating Invasion & Metastasis	
Tues	Apr 18	Bench to Bedside: Special Topics	IX
Thurs	Apr 20	Bench to Bedside: Special Topics	
<i>Tue</i>	<i>Apr 25</i>	<i>Study Day</i>	
	<i>TBD</i>	<i>Discussion Session, Exam IV</i>	
Thur	Apr 27	2:45-4:45pm, Exam IV (Final)	