

Academic Policies and Procedures Committees

PROPOSAL FORM -- Part A

Graduate AP&P Undergraduate AP&P Both (Dual-Listed Courses) Submit simultaneously	Department/Program Proposal # _____ Proposed Effective Date: FALL (year) _____
----------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------

College/Unit _____ Assoc. Dean _____ Proposer(s) _____

Department/Program _____ Chair _____

1. I want to: _____ Briefly describe the action(s) requested:

2. Rationale for this request:

3. a. List the current catalog copy (including dual- or cross-listed information, if applicable). Attach separate sheet if more space needed.

b. List the proposed catalog copy (including dual- or cross-listed information, if applicable). Attach separate sheet if more space needed.

c. Other REQUIRED attachments: see **General Instructions**

7. If changing a course number or adding a course, is the proposed course equivalent to an existing course in Banner?
 yes ___ no ___ n/a ___ (If yes, list the existing and proposed equivalent course below)

Existing Course		Proposed Course	

8. Is this a General Education course? yes ___ no ___ n/a ___ (If requesting new general education credit, submit Part C of the AP&P form with an attached syllabus to the Office of General Education)

9. App State Online:

- a. Does this proposal affect a course or requirement of a distance education program? yes ___ no ___ If yes, has App State Online been consulted? yes ___ no ___ If yes, list the date(s), App State Online contact person, and their response in support or opposition to this proposal:

- b. Mode of delivery: fully online ___ site-based ___
 If you are not sure, contact App State Online.

Academic Policies and Procedures Committees
PROPOSAL FORM -- Part B (For additions only)

SELECT ONE: Course aa" Egtwlecvg aa Concentration __ Minor __ Degree __

1. If this is a new course,
 - a. Has it been offered as Selected Topics in the last five years? yes __ no __ If so, how often and what were the enrollments each semester it was offered?

 - b. Are there courses from other departments that may cover or partially cover the subject matter of the proposed new course? yes __ no __ n/a __ (If yes, list course numbers and titles:)

2. Projected enrollment: 1st year _____ 2nd year _____

3. Projected student clientele:

4. Faculty:
 - a. Additional faculty needed:

 - b. Names of current faculty qualified to teach the course:

 - c. Other and continuing responsibilities of current faculty involved in new degree or course:

5.
 - a. For a new degree, attach the *Letter of Intent* submitted to UNC System Office.
 - b. For a new graduate certificate program, attach the *Proposing a New Graduate Certificate* form.
 - c. For a new undergraduate certificate program, attach an explanation of the career and/or graduate education opportunities available to students.

6. List estimated costs of the new program or course that cannot be covered by the present budget:

7. Contact your department's Library Liaison. *List the date, person contacted, and their response.*
(Click here for a list of Library Liaisons.)

8. Resource responsibilities: Has (have) the appropriate dean(s) been consulted in the development of this proposal?
yes__ no__ If yes, list the date(s), name(s) and title(s) of person(s) contacted, and their response(s) in support or opposition to this proposal:

9. For a new degree or certificate only, consult Institutional Research, Assessment, and Planning (IRAP) to develop functional learning goals and outcomes. Attach the goals and outcomes to be published on IRAP's website. List the date, person contacted, and their response. Examples of outcomes are found here.

10. If the course being proposed is not designated as an Internship (INT), Practicum (PRA), Field Experience (FLD), Clinical (CLN) or Student Teaching (ST) experience, but students will be applying their skills in an experiential manner such as providing professional advice to community members or working directly with minors, has General Counsel been consulted regarding liability? yes__ no__ n/a__

11. For new course, select schedule type:

**DEPARTMENT OF BIOLOGY
APPALACHIAN STATE UNIVERSITY**

Course Number: BIO 4582	Title: The Biology of Cancer
Credit Hours: 3	Time: TR 3:30 PM – 4:45 PM
Instructor: Darren Seals, Ph.D.	Room: Rankin West 158
Office: Rankin South 224	E-mail: sealsdf@appstate.edu
Office Hours: TBA	Phone: (828) 262-2875

Required Resource: Weinberg, The Biology of Cancer (BoC), 2nd Edition, W.W.Norton
Optional Resources: Mukherjee, The Emperor of All Maladies, HarperCollins
 Goodman, Cancer: The Emperor of All Maladies, Public Broadcasting Service

Course Description (Catalog):

The Biology of Cancer is an interdisciplinary discussion of the biography of cancer through lecture and primary literature analysis, with particular focus on the molecular pathogenesis of the disease. Specific topics include tumor viruses, oncogene and tumor suppressor signaling, genomic instability, cancer stem cells, tumor metabolism, the tumor microenvironment, angiogenesis, metastasis, tumor immunology, and therapeutic applications. Lecture three hours. Prerequisites: BIO 2600, BIO 3800. [Dual-listed with BIO 5588.]

Introduction to ‘The Biology of Cancer’:

The Biology of Cancer is an advanced, interdisciplinary course on the molecular pathogenesis of cancer. Lectures will provide foundational information on topics ranging from carcinogenesis to the development of metastatic disease. Your cell and molecular biology courses of the past will be revisited during these lectures, but this time with a focus on how cancer cells spin natural processes to their own advantage, to become as Mukherjee describes ‘more perfect versions of ourselves’. Much of the material covered during lecture is complemented by student-led discussions of a recent paper from high impact cancer journals. Emphasis is placed on a thorough understanding of the techniques, results, and conclusions from each experiment in those papers, and the ability to articulate that to the class. In so doing, we will bring ourselves up to date on the latest advances in the 50-year old ‘war on cancer’ initiated during the Nixon era.

Learning Objectives:

After completing this course, you should be able to...

- (1) describe how the hallmarks of cancer are responsible for the molecular pathogenesis of this disease.
- (2) apply knowledge of cancer biology towards an understanding of targeted therapeutics.
- (3) effectively read, analyze, evaluate, and present impactful cancer biology literature.

Method of Instruction: Lectures, presentations, discussions, videos, and assignments.

Format:

This course is divided into three testable blocks (see class schedule). Each block uses lectures to illustrate the history and hallmarks of cancer biology with an eye towards targeted therapeutic applications. Associated readings from the text (BoC) also delve into these themes and together with the lectures, paper presentations and discussions, and videos will provide the framework for each exam assessment and the achievement of each learning objective.

Assignments and Grading:

This course is fast paced and information heavy. You must be prepared for class by completing the assigned readings for each day. The Weinberg text describes all things cancer biology from a researcher who continues to make seminal contributions to our understanding of this disease. The papers are current, and from high impact journals. They represent the recent discoveries most pertinent to our understanding of cancer and the development of novel strategies for its treatment. During class and in all your assignments, you must be an active participant, attentive and focused.

Late assignments are penalized 10%/day up to a 40% maximum, after which the assignment will be forfeited. Grades are scaled according to the accompanying percentage table based on the 600 total points being assessed in the class.

Percentage	Grade
93-100	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+
73-76	C
70-72	C-
67-69	D+
63-66	D
60-62	D-
<60	F

Assignment	Number	Value/Assignment	Subtotal
Exams	3	100pts	300pts
Questions for Journal Articles	8	12.5pts	100pts
Clinical Cancer Presentation	1	100pts	100pts
Short Write-Up	1	50pts	50pts
Discretionary	1	50pts	50pts
TOTAL			600pts

- **EXAMS—**
You will be examined on the topics from the lectures and their complementary paper discussions for each block. Exams will emphasize conceptual understanding of the material. The format for these exams is multiple choice, true/false, matching, fill-in, short answer, and/or essay. **Note that there is no comprehensive final exam in this course.** *Attendance on the day of the exam is mandatory. You must contact me in advance if you know that you cannot be present on those dates. Not showing up for an exam without a documented excuse is grounds for exam failure.*
- **JOURNAL ARTICLE QUESTIONS—**
On the days in which a paper presentation is being made, each student must submit two questions pertaining to the assigned readings in order to receive credited admittance to the class. Questions must be thoughtful and analytical (*e.g.* relating to how the authors conducted an experiment or how they analyzed their data, etc.). Papers will be posted on AsULearn.
- **CLINICAL CANCER PRESENTATION—**
This is a group activity (of 3-4 students) providing molecular and clinical discussion of an assigned form of cancer to the class. Presentations will be 15min. Subtopics may include the history of that form of cancer, its underlying causes, its clinical presentation, how it is diagnosed, known or suspected causes, staging paradigms, prognostic information, current clinical treatments, and future therapeutic opportunities (including existing clinical trials). Relating information back to key concepts regarding the hallmarks of cancer discussed in class should also be included in the discussion. There will be a time for discussion after each presentation. Contributing to the evaluation for this assignment will be an instructor evaluation of the presentation and peer evaluations of overall participation and effort.
- **SHORT WRITE-UP—**
Each undergraduate student will be responsible for writing a “Cancer in the News” article about a cancer biology topic in well-respected newspapers (*e.g.* NYT, WSJ), magazines (*e.g.* Discover, Scientific American, The Scientist), or scientific journals (*e.g.* Science, Nature). Read the article. Then in your own words write a summary of what was done, why it was done, and its expected impact on society. Also describe why you chose this article and what you liked about it. If pertinent, discuss any conclusions to which you might disagree citing rational reasons why you feel this way. Format: 0.5” Margins, Calibri 11pt font, 1.15” spacing, <1000 words.
- **DISCRETIONARY—**
Based on punctuality, attendance, participation, and effort throughout the course. It is essential for your own satisfactory performance in the class that you do not miss classes and that you arrive on time. I take attendance at the beginning of class so if you are not present you will be marked as late. If you have a legitimate reason for missing a class such as an academic conflict, illness, or family concerns, you must let me know in advance by E-mail. In case of emergencies I will accept a valid excuse after the absence. You are responsible for any material covered, and for obtaining assignments and other materials for classes from which you are absent, nearly all of which will be available on AsULearn. Participation during class in the form of questions and comments is a course expectation. This course can be what you want it to be, but you must seek out a discussion of the topics to which you have interest for that to happen.

ASU has official policies covering academic integrity code, accommodations for students with disabilities, and class attendance policy (including the state mandated religious observance policy). Please visit the Academic Affairs site at <http://academicaffairs.appstate.edu/syllabi>

Tentative Course Schedule (Subject to Change):

Date	Topic	BoC	Assignment Due	Presenter(s)
T Jan 12	Introductions/MCB Review			
R Jan 14	MCB Review (continued)			
T Jan 19	The Hallmarks of Cancer	2.0-7		
R Jan 21	<i>Paper: Blouw (15) PLOS One 10, e0121003</i>			Instructor
T Jan 26	Advent of Cancer Therapeutics	16.2-3	ID Paper/Cancer Topics	
R Jan 28	Carcinogenesis I	2.8-12, 3		
T Feb 2	<i>Paper: Harris (15) Cancer Cell 27, 211</i>		Questions/Presentation	Grad Student
R Feb 4	Oncogenes	4-6		
T Feb 9	Oncogenes (continued)	4-6		
R Feb 11	<i>Paper: Yun (15) Science 350, 1391</i>		Questions/Presentation	Grad Student
T Feb 16	EXAM I			
R Feb 18	Tumor Suppressors	7-9		
T Feb 23	Tumor Suppressors (continued)	7-9		
R Feb 25	<i>Paper: Xu (15) Cancer Cell 27, 177</i>		Questions/Presentation	Grad Student
T Mar 2	Cell Immortalization	10		
R Mar 4	<i>Paper: Stern (15) Genes Dev 29, 2219</i>		Questions/Presentation	Instructor
T Mar 9	UNIVERSITY BREAK – NO CLASS			
R Mar 11	UNIVERSITY BREAK – NO CLASS			
T Mar 16	Multi-Step Tumorigenesis	11		
R Mar 18	Genomic Instability	12		
T Mar 23	<i>Paper: Batavia (14) Nature Cell Biol 16, 982</i>		Questions/Presentation	Grad Student
R Mar 25	EXAM II			
T Mar 30	Tumor Microenvironment/Angiogenesis	13	Short Write-Ups	
R Apr 1	<i>Paper: Acerbi (15) Integr Biol 7, 1120</i>		Questions/Presentation	Grad Student
T Apr 6	Metastasis	14		
R Apr 8	<i>Paper: Zhang (15) Nature 527, 100</i>		Questions/Presentation	Grad Student
T Apr 13	[Clinical Cancer Talks]		Presentations	Undergrads
R Apr 15	[Clinical Cancer Talks]		Presentations	Undergrads
T Apr 20	Tumor Immunology	15		
R Apr 22	<i>Paper: Krieter (15) Nature 520, 692</i>		Questions/Presentation	Instructor
T Apr 27	Targeted Cancer Therapeutics	16.0-1,4-18		
TBA	EXAM III			

**DEPARTMENT OF BIOLOGY
APPALACHIAN STATE UNIVERSITY**

Course Number: BIO 5582	Title: The Biology of Cancer
Credit Hours: 3	Time: TR 3:30 PM – 4:45 PM
Instructor: Darren Seals, Ph.D.	Room: Rankin West 158
Office: Rankin South 224	E-mail: sealsdf@appstate.edu
Office Hours: TBA	Phone: (828) 262-2875

Required Resource: Weinberg, The Biology of Cancer (BoC), 2nd Edition, W.W.Norton
Optional Resources: Mukherjee, The Emperor of All Maladies, HarperCollins
 Goodman, Cancer: The Emperor of All Maladies, Public Broadcasting Service

Course Description (Catalog):

The Biology of Cancer is an interdisciplinary discussion of the biography of cancer through lecture and primary literature analysis, with particular focus on the molecular pathogenesis of the disease. Specific topics include tumor viruses, oncogene and tumor suppressor signaling, genomic instability, cancer stem cells, tumor metabolism, the tumor microenvironment, angiogenesis, metastasis, tumor immunology, and therapeutic applications. **Content mastery and the applied practice of cancer biology commensurate with the graduate level is expected.** Lecture three hours. [Dual-listed with BIO4588.]

Introduction to ‘The Biology of Cancer’:

The Biology of Cancer is an advanced, interdisciplinary course on the molecular pathogenesis of cancer. Lectures will provide foundational information on topics ranging from carcinogenesis to the development of metastatic disease. Your cell and molecular biology courses of the past will be revisited during these lectures, but this time with a focus on how cancer cells spin natural processes to their own advantage, to become as Mukherjee describes ‘more perfect versions of ourselves’. Much of the material covered during lecture is complemented by student-led discussions of a recent paper from high impact cancer journals. Emphasis is placed on a thorough understanding of the techniques, results, and conclusions from each experiment in those papers, and the ability to articulate that to the class. In so doing, we will bring ourselves up to date on the latest advances in the 50-year old ‘war on cancer’ initiated during the Nixon era.

Learning Objectives:

After completing this course, you should be able to...

- (1) describe how the hallmarks of cancer are responsible for the molecular pathogenesis of this disease.
- (2) apply knowledge of cancer biology towards an understanding of targeted therapeutics.
- (3) effectively read, analyze, evaluate, and present impactful cancer biology literature.

Method of Instruction: Lectures, presentations, discussions, videos, and assignments.

Format:

This course is divided into three testable blocks (see class schedule). Each block uses lectures to illustrate the history and hallmarks of cancer biology with an eye towards targeted therapeutic applications. Associated readings from the text (BoC) also delve into these themes and together with the lectures, paper presentations and discussions, and videos will provide the framework for each exam assessment and the achievement of each learning objective.

Assignments and Grading:

This course is fast paced and information heavy. You must be prepared for class by completing the assigned readings for each day. The Weinberg text describes all things cancer biology from a researcher who continues to make seminal contributions to our understanding of this disease. The papers are current, and from high impact journals. They represent the recent discoveries most pertinent to our understanding of cancer and the development of novel strategies for its treatment. During class and in all your assignments, you must be an active participant, attentive and focused.

Late assignments are penalized 10%/day up to a 40% maximum, after which the assignment will be forfeited. Grades are scaled according to the accompanying percentage table based on the 600 total points being assessed in the class.

Percentage	Grade
93-100	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+
73-76	C
70-72	C-
<70	F

Assignment	Number	Value/Assignment	Subtotal
Exams	3	100pts	300pts
Questions for Journal Articles	8	12.5pts	100pts
Journal Article Presentation	1	100pts	100pts
Short Write-Up	1	50pts	50pts
Discretionary	1	50pts	50pts
TOTAL			600pts

- **EXAMS—**
You will be examined on the topics from the lectures and their complementary paper discussions for each block. Exams will emphasize conceptual understanding of the material. The format for these exams is multiple choice, true/false, matching, fill-in, short answer, and/or essay. **Note that there is no comprehensive final exam in this course.** Attendance on the day of the exam is mandatory. You must contact me in advance if you know that you cannot be present on those dates. Not showing up for an exam without a documented excuse is grounds for exam failure.
- **JOURNAL ARTICLE QUESTIONS—**
On the days in which a paper presentation is being made, each student must submit two questions pertaining to the assigned readings in order to receive credited admittance to the class. Questions must be thoughtful and analytical (e.g. relating to how the authors conducted an experiment or how they analyzed their data, etc.). Papers will be posted on AsULearn.
- **JOURNAL ARTICLE PRESENTATION*—**
Each graduate student will have the unique responsibility of giving two, class-long presentations that lead discussion of an assigned paper from the cancer biology literature. The first presentation/discussion will receive an ungraded oral evaluation. The second presentation/discussion will be graded. Presentations will thoroughly describe the background information leading up to the particular study described in the paper and its connections to the concepts we have discussed in class. Figures will be analyzed through a cycle involving hypothesis, methods, results, and synopsis, such that one figure (experiment) leads naturally into the next. Editorial comments relating to problematic methods or data, unanswered questions, future directions, and an overall impression of the paper will cap off each paper presentation, as well as a graduate-student driven discussion of the paper. An instructor-led paper presentation early in the course will model the format to be used. It is required that each graduate student meet with the instructor to discuss the paper and the presentation at least 1 week prior to the date of presentation. Contributing to the evaluation for this assignment will be participation at the assigned meeting and the instructor's evaluation of the presentation.
- **SHORT WRITE-UP*—**
Communicating complex scientific ideas to a mainstream audience is a difficult, but vitally important, scientific skill, as science and society are always interfacing with and impacting each other. Each graduate student will be responsible for writing a "Press Release" covering a cancer biology paper of personal interest. This means a translation of the technical language of scientific writing into an interesting and informative short paper that a lay audience could read and understand. A model 'Press Release' document and the technical paper to which it is associated will be provided. Efforts will be made to use non-biology majors as part of the evaluation. **Format: 0.5" Margins, Calibri 11pt font, 1.15" spacing, <1000 words.**
- **DISCRETIONARY*—**
Based on punctuality, attendance, participation, and effort throughout the course. It is essential for your own satisfactory performance in the class that you do not miss classes and that you arrive on time. I take attendance at the beginning of class so if you are not present you will be marked as late. If you have a legitimate reason for missing a class such as an academic conflict, illness, or family concerns, you must let me know in advance by E-mail. In case of emergencies I will accept a valid excuse after the absence. You are responsible for any material covered, and for obtaining assignments and other materials for classes from which you are absent, nearly all of which will be available on AsULearn. Participation during class in the form of questions and comments is a course expectation. Graduate students are expected to take leadership in the participatory aspect of each class and are evaluated as such with greater stringency. This course can be what you want it to be, but you must seek out a discussion of the topics to which you are most interested for that to happen.

Assignments designated with an asterisk () are either unique assessment categories and/or require greater course involvement commensurate with the graduate level.*

ASU has official policies covering academic integrity code, accommodations for students with disabilities, and class attendance policy (including the state mandated religious observance policy). Please visit the Academic Affairs site at <http://academicaffairs.appstate.edu/syllabi>

Tentative Course Schedule (Subject to Change):

Date	Topic	BoC	Assignment Due	Presenter(s)
T Jan 12	Introductions/MCB Review			
R Jan 14	MCB Review (continued)			
T Jan 19	The Hallmarks of Cancer	2.0-7		
R Jan 21	<i>Paper: Blouw (15) PLOS One 10, e0121003</i>			Instructor
T Jan 26	Advent of Cancer Therapeutics	16.2-3	ID Paper/Cancer Topics	
R Jan 28	Carcinogenesis I	2.8-12, 3		
T Feb 2	<i>Paper: Harris (15) Cancer Cell 27, 211</i>		Questions/Presentation	Grad Student
R Feb 4	Oncogenes	4-6		
T Feb 9	Oncogenes (continued)	4-6		
R Feb 11	<i>Paper: Yun (15) Science 350, 1391</i>		Questions/Presentation	Grad Student
T Feb 16	EXAM I			
R Feb 18	Tumor Suppressors	7-9		
T Feb 23	Tumor Suppressors (continued)	7-9		
R Feb 25	<i>Paper: Xu (15) Cancer Cell 27, 177</i>		Questions/Presentation	Grad Student
T Mar 2	Cell Immortalization	10		
R Mar 4	<i>Paper: Stern (15) Genes Dev 29, 2219</i>		Questions/Presentation	Instructor
T Mar 9	UNIVERSITY BREAK – NO CLASS			
R Mar 11	UNIVERSITY BREAK – NO CLASS			
T Mar 16	Multi-Step Tumorigenesis	11		
R Mar 18	Genomic Instability	12		
T Mar 23	<i>Paper: Batavia (14) Nature Cell Biol 16, 982</i>		Questions/Presentation	Grad Student
R Mar 25	EXAM II			
T Mar 30	Tumor Microenvironment/Angiogenesis	13	Short Write-Ups	
R Apr 1	<i>Paper: Acerbi (15) Integr Biol 7, 1120</i>		Questions/Presentation	Grad Student
T Apr 6	Metastasis	14		
R Apr 8	<i>Paper: Zhang (15) Nature 527, 100</i>		Questions/Presentation	Grad Student
T Apr 13	[Clinical Cancer Talks]		Presentations	Undergrads
R Apr 15	[Clinical Cancer Talks]		Presentations	Undergrads
T Apr 20	Tumor Immunology	15		
R Apr 22	<i>Paper: Krieter (15) Nature 520, 692</i>		Questions/Presentation	Instructor
T Apr 27	Targeted Cancer Therapeutics	16.0-1,4-18		
TBA	EXAM III			