

FORMAT 1

Submit original with signatures + 1 copy + electronic copy to Faculty Senate (Box 7500).
See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures/> for a complete description of the rules governing curriculum & course changes.

TRIAL COURSE OR NEW COURSE PROPOSAL**SUBMITTED BY:**

Department	Biology and Wildlife	College/School	CNSM
Prepared by	Andrej Podlutsky	Phone	(907) 474-6759
Email Contact	apodlutsky@alaska.edu	Faculty Contact	Andrej Podlutsky

1. ACTION DESIRED**(CHECK ONE):**

Trial Course

New Course

XX

2. COURSE IDENTIFICATION:

Dept

BIOL

Course #

F4XX

No. of Credits

3

Justify upper/lower division status & number of credits:

This course is designed for upper level undergraduate students and graduate students. Basic knowledge of cell biology and genetics is required prior to enrolment of this course. BIOL261 or equivalent course are prerequisites for this course. This course will cover the principles of cancer biology. Minimum three (3) credits will be needed for this purpose. The main emphasis of this course is on the biological side of cancer development and progression; although medical aspects of cancer growth and treatment will be discussed and presented in less detail.

3. PROPOSED COURSE TITLE:

Introduction to Biology of Cancer

4. To be CROSS LISTED? YES/NO

If yes, Dept:

Course #

(Requires approval of both departments and deans involved. Add lines at end of form for additional required signatures.)

5. To be STACKED? YES/NO

Y

If yes, Dept.

BIOL

Course #

BIOL F6XX

Stacked course applications are reviewed by the (Undergraduate) Curricular Review Committee and by the Graduate Academic and Advising Committee. Creating two different syllabi—undergraduate and graduate versions—will help emphasize the different qualities of what are supposed to be two different courses. The committees will determine: 1) whether the two versions are sufficiently different (i.e. is there undergraduate and graduate level content being offered); 2) are undergraduates being overtaxed?; 3) are graduate students being undertaxed? In this context, the committees are looking out for the interests of the students taking the course. Typically, if either committee has qualms, they both do. More info online – see URL at top of this page.

6. FREQUENCY OF OFFERING:

Fall, every year

Fall, Spring, Summer (Every, or Even-numbered Years, or Odd-numbered Years) — or As Demand Warrants

7. SEMESTER & YEAR OF FIRST OFFERING
(AY2013-14 if approved by 3/1/2013; otherwise AY2014-15)

AY2013-14

8. COURSE FORMAT:

NOTE: Course hours may not be compressed into fewer than three days per credit. Any course compressed into fewer than six weeks must be approved by the college or school's curriculum council. Furthermore, any core course compressed to less than six weeks must be approved by the core review committee.

COURSE FORMAT: (check all that apply)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input checked="" type="checkbox"/> 6 weeks to full semester
OTHER FORMAT (specify)						
Mode of delivery (specify lecture, field trips, labs, etc)	Lectures					

9. CONTACT HOURS PER WEEK:	<input type="checkbox"/> 3	LECTURE hours/weeks	<input type="checkbox"/>	LAB hours /week	<input type="checkbox"/>	PRACTICUM hours /week
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Note: # of credits are based on contact hours. 800 minutes of lecture=1 credit. 2400 minutes of lab in a science course=1 credit. 1600 minutes in non-science lab=1 credit. 2400-4800 minutes of practicum=1 credit. 2400-8000 minutes of internship=1 credit. This must match with the syllabus. See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures-/guidelines-for-computing-/> for more information on number of credits.

OTHER HOURS (specify type)	
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10. COMPLETE CATALOG DESCRIPTION including dept., number, title, credits, credit distribution, cross-listings and/or stacking (50 words or less if possible):

Example of a complete description:

FISH F487 W, O Fisheries Management

3 Credits Offered Spring

Theory and practice of fisheries management, with an emphasis on strategies utilized for the management of freshwater and marine fisheries. *Prerequisites: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; ENGL F414; FISH F425; or permission of instructor. Cross-listed with NRM F487. (3+0)*

Introduction to Biology of Cancer.

Course covers current knowledge of cancer: basic research, treatment, various genetic and molecular changes normal cells undergo during transformation into malignant cells. Topics include: growth factors, oncogenes, tumor suppressors, cancer-causing viruses, and current therapeutic approaches to treatment.

Prerequisites: BIOL-F261/F360 or equivalent; or permission of instructor. (3+0)

11. COURSE CLASSIFICATIONS: Undergraduate courses only. Consult with CLA Curriculum Council to apply S or H classification appropriately; otherwise leave fields blank.

H = Humanities	<input type="checkbox"/>	S = Social Sciences	<input type="checkbox"/>
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Will this course be used to fulfill a requirement for the baccalaureate core? If YES, attach form.	YES:	<input type="checkbox"/>	NO:	<input checked="" type="checkbox"/>
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IF YES, check which core requirements it could be used to fulfill:

O = Oral Intensive, Format 6	<input type="checkbox"/>	W = Writing Intensive, Format 7	<input type="checkbox"/>	Natural Science, ("X" for Core) Format 8	<input type="checkbox"/>
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11.A Is course content related to northern, arctic or circumpolar studies? If yes, a "snowflake" symbol will be added in the printed Catalog, and flagged in Banner.

YES	<input type="checkbox"/>	NO	<input checked="" type="checkbox"/>
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12. COURSE REPEATABILITY:Is this course repeatable for credit? YES ☐ NO ☒

Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time).

How many times may the course be repeated for credit?

TIMES

If the course can be repeated for credit, what is the maximum number of credit hours that may be earned for this course?

CREDITS

If the course can be repeated with variable credit, what is the maximum number of credit hours that may be earned for this course?

CREDITS

13. GRADING SYSTEM: Specify only one. Note: Later changing the grading system for a course constitutes a Major Course Change.LETTER: ☒ PASS/FAIL: ☐**RESTRICTIONS ON ENROLLMENT (if any)****14. PREREQUISITES**

BIOL F261/F360 or permission of instructor

These will be *required* before the student is allowed to enroll in the course.**15. SPECIAL RESTRICTIONS, CONDITIONS**

none

16. PROPOSED COURSE FEES

\$ 0

Has a memo been submitted through your dean to the Provost for fee approval?

Yes/No

17. PREVIOUS HISTORY

Has the course been offered as special topics or trial course previously?

Yes

Yes/No

If yes, give semester, year, course #, etc.:

Fall 2013, BIOL F492/F692 (CRN 80179, 80180)

18. ESTIMATED IMPACT**WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.**

None. This course is part of the faculty annual workload agreement.

19. LIBRARY COLLECTIONS

Have you contacted the library collection development officer (kljensen@alaska.edu, 474-6695) with regard to the adequacy of library/media collections, equipment, and services available for the proposed course? If so, give date of contact and resolution. If not, explain why not.

No

Yes

☒

Textbook: The Biology of Cancer, by R.A. Weinberg, GS, Second Edition is currently available at the library

20. IMPACTS ON PROGRAMS/DEPTS**What programs/departments will be affected by this proposed action?**

Include information on the Programs/Departments contacted (e.g., email, memo)

This course will contribute to the Biology & Wildlife curriculum by providing a course focused on human health, a growing part of the curriculum and an area of high student interest. The course will likely have

little impact on other department, except on department of Chemistry and Biochemistry if this course is cross-listed. Importantly, this course will increase diversity of human-health related courses offered at UAF – this will help broadening spectrum of biomedical education offered in Alaska.

21. POSITIVE AND NEGATIVE IMPACTS

Please specify positive and negative impacts on other courses, programs and departments resulting from the proposed action.

No known negative impacts. Positively, the addition of this course will enhance student choice on a relevant subject matter.

JUSTIFICATION FOR ACTION REQUESTED

The purpose of the department and campus-wide curriculum committees is to scrutinize course change and new course applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. Use as much space as needed to fully justify the proposed course.

The justification for this course is based on the need to provide upper division credit that is closely linked to the biomedical field for students in Biological Sciences. For example, students who take Human an Anatomy Physiology courses may be interested in furthering their interest in studying biological mechanisms of cancer progression, growth factors activation, oncogenic transformation of normal cells, and applying that knowledge toward understanding medical aspects of tumorigenesis. While previously unavailable, students might consider working toward specialized biological and/or medical degree, potentially providing greater direction in their career choices.

APPROVALS: Add additional signature lines as needed.

SEE ATTACHED SIGNATURES

	Date	
Signature, Chair, Program/Department of:		

	Date	
Signature, Chair, College/School Curriculum Council for:		

	Date	
Signature, Dean, College/School of:		

Offerings above the level of approved programs must be approved in advance by the Provost.

	Date	
Signature of Provost (if above level of approved programs)		

ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

	Date	
Signature, Chair Faculty Senate Review Committee: ___Curriculum Review ___GAAC		

If yes, give semester, year, course #, etc.:

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18. ESTIMATED IMPACT

WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.

None

19. LIBRARY COLLECTIONS

Have you contacted the library collection development officer (kljensen@alaska.edu, 474-6695) with regard to the adequacy of library/media collections, equipment, and services available for the proposed course? If so, give date of contact and resolution. If not, explain why not.

No	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/>	Textbook: The Biology of Cancer, by R.A. Weinberg, GS, is currently not available at the library
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20. IMPACTS ON PROGRAMS/DEPTS

What programs/departments will be affected by this proposed action?
Include information on the Programs/Departments contacted (e.g., email, memo)

None

21. POSITIVE AND NEGATIVE IMPACTS

Please specify positive and negative impacts on other courses, programs and departments resulting from the proposed action.


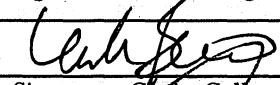
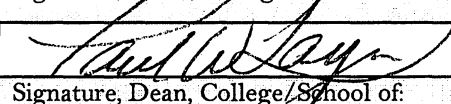
No known negative impacts. Positively, the addition of this course will enhance student choice on a relevant subject matter.

JUSTIFICATION FOR ACTION REQUESTED

The purpose of the department and campus-wide curriculum committees is to scrutinize course change and new course applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. Use as much space as needed to fully justify the proposed course.

The relevance of the subject matter goes without qualification. The course fits well within the parameters of the instructor's research and educational background.

APPROVALS: Add additional signature lines as needed.

	P. Balboa de Mulder	Date	2/20/13
Signature, Chair, Program/Department of:			
		Date	5 Mar 2013
Signature, Chair, College/School Curriculum Council for:			
	CN SM		
		Date	Mar 8, 2013
Signature, Dean, College/School of:			
	CN SM		

Offerings above the level of approved programs must be approved in advance by the Provost.

	Date
Signature of Provost (if above level of approved programs)	

ATTACH COMPLETE SYLLABUS (as part of this application). The guidelines are online:

<http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures-/uaf-syllabus-requirements/>

The Faculty Senate curriculum committees will review the syllabus to ensure that each of the items listed below are included. If items are missing or unclear, the proposed course (or changes to it) may be denied.

SYLLABUS CHECKLIST FOR ALL UAF COURSES

During the first week of class, instructors will distribute a course syllabus. Although modifications may be made throughout the semester, this document will contain the following information (as applicable to the discipline):

1. Course information:

☐ Title, ☐ number, ☐ credits, ☐ prerequisites, ☐ location, ☐ meeting time
(make sure that contact hours are in line with credits).

2. Instructor (and if applicable, Teaching Assistant) information:

☐ Name, ☐ office location, ☐ office hours, ☐ telephone, ☐ email address.

3. Course readings/materials:

☐ Course textbook title, ☐ author, ☐ edition/publisher.
☐ Supplementary readings (indicate whether ☐ required or ☐ recommended) and
☐ any supplies required.

4. Course description:

☐ Content of the course and how it fits into the broader curriculum;
☐ Expected proficiencies required to undertake the course, if applicable.
☐ Inclusion of catalog description is *strongly* recommended, and
☐ Description in syllabus must be consistent with catalog course description.

5. ☐ Course Goals (general), and (see #6)

6. ☐ Student Learning Outcomes (more specific)

7. Instructional methods:

☐ Describe the teaching techniques (eg: lecture, case study, small group discussion, private instruction, studio instruction, values clarification, games, journal writing, use of Blackboard, audio/video conferencing, etc.).

8. Course calendar:

☐ A schedule of class topics and assignments must be included. Be specific so that it is clear that the instructor has thought this through and will not be making it up on the fly (e.g. it is not adequate to say "lab". Instead, give each lab a title that describes its content). You may call the outline Tentative or Work in Progress to allow for modifications during the semester.

9. Course policies:

☐ Specify course rules, including your policies on attendance, tardiness, class participation, make-up exams, and plagiarism/academic integrity.

10. Evaluation:

☐ Specify how students will be evaluated, ☐ what factors will be included, ☐ their relative value, and ☐ how they will be tabulated into grades (on a curve, absolute scores, etc.) ☐ Publicize UAF regulations with regard to the grades of "C" and below as applicable to this course. (Not required in the syllabus, but may be a convenient way to publicize this.) Faculty Senate Meeting #171:

<http://www.uaf.edu/uafgov/faculty-senate/meetings/2010-2011-meetings/#171>

11. Support Services:

☐ Describe the student support services such as tutoring (local and/or regional) appropriate for the course.

12. Disabilities Services: Note that the phone# and location have been **updated**.

The Office of Disability Services implements the Americans with Disabilities Act (ADA), and ensures that UAF students have equal access to the campus and course materials.

☐ State that you will work with the Office of Disabilities Services (208 WHITAKER BLDG, 474-5655) to provide reasonable accommodation to students with disabilities.

8/1/2012

Syllabus: Introduction to Biology of Cancer.

BIOL F4XX – undergraduate level

BIOL F6XX – graduate level

CRN 80179 & 80180

3 Credits

Prerequisite: BIOL360 (with BIOL115X & 116X)

Lectures are:

Tue-Thu, 3:40 – 5:10 pm, Murie Room 107

Instructor:

<u>NAME</u>	<u>ROLE</u>	<u>EMAIL</u>	<u>OFFICE & HOURS</u>
Dr. Andrej Podlutzky	Faculty	apodlutzky@alaska.edu	WRRB 232; Wed 10-12

Required Textbook: “The Biology of Cancer” 2nd Edition, 2013, By Robert A. Weinberg, Garland Publishing.

Course description:

Introduction to Biology of Cancer covers 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. Topics include the natural history of cancer, oncogenes, tumor suppressors, cancer-causing viruses, and current therapeutic approaches to cancer treatment.

Course goals: Students will gain knowledge of tumorigenesis, learn techniques commonly used in cancer biology, sharpen their critical thinking skills, and gain insight into the cellular and molecular basis of disease. Students will be able to: describe the six hallmarks of cancer, explain the types of gene mutations possible and how these mutations can contribute to cancer formation, describe an oncogene and why it is important in cancer development, describe the function of tumor suppressor genes, learn how cancer cells escape cell death, and explain current approaches in cancer treatment.

This course is offered to graduate and undergraduate students who wish to learn about biology of cancer. Accordingly, requirements are different – graduate students are required to choose a specific chapter from the textbook and present it to the class, presentation should include in-depth analysis of the chapters material plus recent peer-reviewed publication on the selected topic; in addition graduate student will write a mini-review report on selected topic with critical analysis/synthesis of recently published research material. Based on her/his interest, I will help graduate student to choose a textbook chapter and research articles for the presentation, by October 1 graduate students should decide on the topic of presentation.

Instructional methods: This course will be taught through a combination of lectures, group problem solving, and student-led presentations/discussions.

Policies: Class attendance is required. Classes will start and end on time; you are expected to be on time. If for any reason you are not able to attend a specific classmeeting, you will be responsible for

catching up with the material covered during the absence. If you are required to participate in either (a) military or (b) UAF-required activities that will cause you to miss class, you must notify me as soon as possible before your absence. Tardiness, absenteeism, inattentiveness, and unfamiliarity with course material will all negatively impact this subjective assessment. Note that UAF policy provides a mechanism for an instructor to unilaterally withdraw a student from any course. Chronic absenteeism will be grounds for such action, at the discretion of the instructor.

You are responsible for any material covered if absent from class regardless of the reason. Notes must be obtained from classmates.

I will be more than happy to help clarify material missed during any absence, but it must be during my office hours or another time outside of class that is convenient for both of us and you must be prepared (you must have read and thought about the material before meeting with me).

Electronic devices: during lectures – please refrain from using any device in the class that might disrupt the lecture or your colleagues. This includes, but not limited to: cell phones, pagers, PDA, iPods (you get the idea).

Exams: Exams will be based on material covered in lectures, textbook and other readings. You are expected to take all exams at the scheduled time. Check the schedule carefully and plan your appointments and travel around the course schedule. In particular, make sure you schedule your travel plans for break after the final exam. I will not grant requests for early finals to accommodate early travel. Exams will contain multiple choice and short answer items.

Scheduled absences: For absences caused by conflict with a University-sanctioned activity (e.g., participation in a competition as a UAF athlete), you must notify me in advance of the exam. You will be expected to take the exam before your absence. Other types of scheduled absence are generally **not** accepted; you are expected to schedule around the exams.

Unscheduled (emergency) absences: If an emergency arises (ie: family death, medical emergency) the day of the exam that makes you unable to attend the exam, you must inform me before the start of the exam by e-mail or phone (leave a message if you can't reach me). You must take a make-up exam within 48 hours of the scheduled exam. It is your responsibility to schedule the make-up. If not taken within 48 hours, the exam will be recorded as a zero. You should expect to provide documentation of the emergency. Make-up exams are **not** guaranteed; they are granted at the instructor's discretion.

Blackboard: Slides used in lecture will be posted on Blackboard prior to/or after the lecture. Please do not use these as a substitute for taking notes. The slides will contain mostly figures, illustrating many of the complex processes we will be discussing during class. I use minimal text on slides and strongly encourage you to take notes to enhance your understanding and learning of the material. Note taking is a skill that requires practice to master, and is essential for learning.

I also use Blackboard to post announcements, exam and homework keys, and any other interesting tidbits. Please check out the BB site on a regular basis. I also use the UAF email accounts to contact students. Please check your UAF account on regular basis. If you use an alternate account, please have your UAF mail forwarded to that account.

Email Etiquette: I will do my best to respond to your email inquiries within 24 hrs. Please be considerate in your letters and use proper English grammar. Think before you send and never write anything you would feel uncomfortable saying to me (or anyone else!) in person. Please sign your letter; addresses don't always reveal the identity of the writer. I do not accept any assignment via email.

Disabilities: I will work with the Office of Disabilities Service (Whitaker Building, Room 208, Tel: (907) 474-5665) to provide accommodations and equal access to all materials in this course to all students.

Grading: Your final grades will be based on the following:

- (1) Exams (450 points):** There will be four exams during the semester, one of which is the final exam. Each exam will count for 100 points (300 points total). The final exam (150 points) will be cumulative. The questions at the end of each chapter are an excellent study guide. I strongly suggest that you test yourself with these questions after reading each chapter. Twenty points from each exam will be in the form of take-home questions in which you apply the knowledge you learn in class to solve problems. During exams (exception - Final Exam) students are allowed to use their hand-written notes, because of this - taking good notes during class lectures and presentations is very important. Each exam will contain “take-home” part (usually 15-20% of exam grade); graduate students are expected to search NCBI (<http://www.ncbi.nlm.nih.gov/pubmed>) for the recent research article and provide answer based on gained information.
- (2) Current topics in the biology of cancer presentation (75 points):** These presentations are an opportunity for us all to learn more about current issues in cancer biology. I will provide one background article to get you started. You will need to research additional material for your presentation. Undergraduate students: you will work in groups of three, and you can divide the work in any way you choose, however each of you must speak an equivalent length of time. The presentations should be approximately 45 minutes in length (total), so you can estimate ~15 min. per person. Graduate students: will do their presentation alone, length of presentation 30 minutes, use of research articles required. Presentation should include sufficient background information on the topic and then cover any controversies related to the topic, including both sides of any argument. For example, in relation to BRCA1, there are some people who are being tested for the presence of a mutation in this gene and then getting mastectomies if they are carriers, regardless of whether or not they have cancer. Do you think this is a good idea, why or why not? Is genetic testing in general a good idea? Everyone must let me know by September 15 which topic they will be working on. Once your groups have been established, I would like to meet with each group to help plan your presentation. You may use either PowerPoint slides or overheads for your presentation.
- (3) Report (75 points, BIOL6XX only):** you will write an 8-page report (line spacing: single) on the one of recommended topics, which is related to current research in cancer (reference list should contains at least 10 citations). I will provide rubrics for the report. Graduate students are expected to write a mini-review style report containing critical analysis and synthesis based on covered materials and published research articles. Reports are due on December 1 by noon, and should be uploaded to BB, link will be provided. No late reports are accepted.
- (4) Homework (5 x 15 = 75 points):** during the course I will give you a home work assignments, which could be related to the material covered in lectures, discussed in class, or related to the newly published high-impact article (Cell, Nature, Science). Homework due date will be specified for each assignment; late home-work assignments are not accepted.

In summary your grade will be based on the following:

		BIOL 4XX (undergraduate level)	BIOL6XX (graduate level)
	Exams	3 x 100 = 300	3 x 100 = 300
	Final exam	150	150
	Presentation	75	75
	Report	-	75
	Homework	75	75
	Total	650	725

Grades: A= 90–100%, B= 80–90%, C= 70–80%, D= 60–70% and F< 60%.

Secrets to success: We will cover a large amount of material during this semester. Some of it may be familiar to you, but many topics will be new. There are few techniques you can use to help you to succeed in this course.

- 1) **Read the book before coming to lecture.** This will allow you to familiarize yourself with the material before I cover it. Also, if you have questions about what you read, you can ask during the lecture. Please, please, never be afraid to ask a question. Undoubtedly there is someone else in the room wondering the same thing, and it will help everyone if I have an opportunity to explain something in a slightly different way, or clarify a point.
- 2) **Take notes during class.** This is an excellent way to reinforce your learning of the material. Although I will post slides on Blackboard before the lecture, I will discuss the material in much more detail than is on the slide and you will be responsible for this material on the exam.
- 3) **Review your notes shortly after lecture,** and ask me again if something is unclear, or fill in missing pieces with information from the text. Also (number 3.5), as I stated above, test yourself by answering the questions at the end of the text.
- 4) **Quiz yourself****.** Use questions at the end of each chapter to test your understanding of the material. These questions are a GREAT way to study!!!

Most of all, do not procrastinate! There is no way you can do well on an exam in this course by waiting until the night before the exam to study.

Course description for the catalog (50 words).

Course covers current knowledge of cancer: basic research, treatment, various genetic and molecular changes normal cells undergo during transformation into malignant cells. Topics include: growth factors, oncogenes, tumor suppressors, cancer-causing viruses, and current therapeutic approaches to treatment. Premed-students would benefit by learning about fastest developing field of medicine.

Acknowledgement:

This syllabus was developed with the help of Dr. Michael Harris of UAF, who teaches “Neurobiology” class (BIOL470/617), his contribution is greatly appreciated. Any errors/mistakes, however, are sole responsibility of Andrej Podlutsky.

Date	Lecture	Exam	Book Chapter
9/9	Introduction: Biology and Genetics of Cells and Organisms		Ch 1
9/11	The Nature of Cancer		Ch 2
9/16	Tumor Viruses		Ch 3
9/18	Cellular Oncogenes		Ch 4
9/23	Growth Factors, Receptors, and Cancer		Ch 5
9/25	Cytoplasmic Signaling Circuitry Programs		Ch 6
9/30		Exam 1	
10/2	Tumor Suppressor Genes		Ch 7
10/7	pRb and Control of the Cell Cycle Clock		Ch 8
10/9	p53 and Apoptosis: Master Guardian and Executioner		Ch 9
10/14	Eternal Life: Cell Immortalization and Tumorigenesis		Ch 10
10/16	Multi-Step Tumorigenesis		Ch 11
10/21		Exam 2	
10/23	- - NO Class Mid Break - -		
10/28	- - NO Class Mid Break - -		
10/30	Multi-Step Tumorigenesis <i>Current Topics in Cancer Research. Student's presentation</i>		Ch 11
11/4	Maintenance of Genomic Integrity and the Development of Cancer I		Ch 12
11/6	Maintenance of Genomic Integrity and the Development of Cancer II		Ch 12
11/11	Heterotopic Interactions and the Biology of Angiogenesis		Ch 13
11/13	Moving Out: Invasion and Metastasis		Ch 14
11/18	Stem Cells and Cancer <i>Current Topics in Cancer Research. Student's presentation</i>		
11/20		Exam 3	
11/25	Crowd Control: Tumor Immunology & Immunotherapy I		Ch 15

11/27	Crowd Control: Tumor Immunology & Immunotherapy II		Ch 15
11/28	Rational Treatment of Cancer		Ch 16
12/2	Rational Treatment of Cancer <i>Current Topics in Cancer Research.</i> <i>Student's presentation</i>		Ch 16
12/4	Aging as a Major Risk Factor of Cancer <i>Current Topics in Cancer Research.</i> <i>Student's presentation</i>		TBA
12/9	Makeup class and/review session(s)		
12/11	Makeup class and/review session(s)		
12/19			
		Final Exam 4	