

# COURSE SYLLABUS

<b>Course Title:</b>	<b>Special Topics: Biology of Cancer</b>	<b>Date submitted:</b>	<b>November 18, 2008 (08-133)</b>
<b>Department:</b>	<b>Math/Science</b>		
<b>Curriculum:</b>	<b>Biology</b>		
<b>Course Descriptors:</b> Make certain that the course descriptors are consistent with college and Board of Trustees policies, and the current course numbering system.	<b>Course Code:</b> (eg. ACC 101) <b>BIO*298</b> <b>Course Type:</b> <b>L</b> A: Clinical B: Lab D: Distance Learning I: Individual/Independent L: Lecture N: Internship M: Seminar P: Practicum U: Studio X: Combined Lecture/Lab Y: Combined Lecture/ Clinical/Lab Z: Combined Lecture/Studio	<b>Prerequisites:</b>	
	<b>Elective Type:</b> <b>S</b> AH: Art History E: English FA: Fine Arts G: General HI: History HU: Humanities LA: Liberal Arts FL: Foreign Language M: Math S: Science SS: Social Science	C- or better in General Biology I and C- or better in Composition or permission of the <b>Department Chair</b>	
	<b>Credit Hours:</b> <b>3</b> <b>Developmental:</b> (yes/no) <b>N</b> Lecture: <b>3</b> Clinical: <b>0</b> <b>Contact Hours:</b> Lab: <b>0</b> Studio <b>0</b> Other: <b>0</b> TOTAL: <b>3</b>	<b>Corequisites:</b>	
	<b>Class Maximum:</b> <b>24</b> <b>Semesters Offered:</b> <b>F/S</b>	None	
		<b>Other Requirements:</b>	
		None	
<b>Catalog Course Description:</b>	This course is designed to present the basic biology of cancer, including the cellular processes, whose alteration leads to uncontrolled cell proliferation. Topics include the pathology and the genetic basis of cancer, role of infectious agents and environmental carcinogens in the disease process. The epidemiological patterns of cancer, therapies, and prevention strategies are integrated into the discussion. Prerequisites: C- or better in General Biology I and C- or better in Composition or permission of the <b>Department Chair</b> .		
<b>Topical Outline:</b> List course content in outline format.	1. Cancer: Introductory Overview A. Incidence and Mortality B. Benign and Malignant Tumors C. Cancer Differences  2. Cancer Cell Profile A. Growth Factors and Cell Cycle B. Apoptosis C. DNA Damage and Repair D. Tumor Immunology		

3. How Cancers Spread
  - A. Tumor Angiogenesis
  - B. Invasion and Metastasis
4. Identifying the Causes of Cancer
  - A. Epidemiology
  - B. Causes of Human Cancer
5. Chemical Carcinogens
6. Radiation and Cancer
7. Infectious agents and Cancer
8. Heredity and Cancer
9. Oncogenes
10. Tumor Suppressor Genes
11. Cancer Screening, Diagnosis and Treatment
  - A. Surgery, Radiation, and Chemotherapy
  - B. Immunotherapy
  - C. Other Approaches
12. Preventing Cancer

**Upon successful completion of this course, the student will be able to do the following:**

1. describe how cancer arises at the cellular and genetic levels
2. explain how cancer spreads
3. recognize cell cycle regulation, cell death, and cell signaling mechanisms in normal and tumor cells
4. explain the specific kinds of genes altered in tumors, including oncogenes and tumor suppressor genes
5. analyze how current genetic developments in cancer biology could influence cancer management
6. debate ethical and social implications of cancer research and therapies
7. interpret patterns of disease
8. identify causes of cancer
9. write and present a research paper on a specific type of cancer

**PROGRAM:** *(Numbering reflects Program Outcomes as they appear in the college catalog)*

N/A

**GENERAL EDUCATION:** *(Numbering reflects General Education Outcomes as they appear in the college catalog)*

1. **Communication**
  - 1.1 **Writing: Effectively communicates thoughts and ideas in writing**
    - 1.1.1 Level 1: communicates effectively in writing

	<p>2. <b>Critical Thinking</b>                  2.1 <b>Selects and evaluates information</b>                  2.1.1 Level 1: distinguishes between relevant and irrelevant information</p>
<p><b>Evaluation:</b>                  List how the above outcomes will be assessed.</p>	<p><b>Assessment will be based on the following criteria:</b>                  quizzes                  examinations                  paper                  presentation</p>
<p><b>Instructional Resources:</b>                  List library (e.g. books, journals, on-line resources), technological (e.g. Smartboard, software), and other resources (e.g. equipment, supplies, facilities) required and desired to teach this course.</p>	<p><b>Required:</b> Current Tunxis library holdings will support the needs of this course.   <b>Desired:</b></p>
<p><b>Textbook(s)</b></p>	<p>Kleinsmith, Lewis K., <u>Principles of Cancer Biology</u>, Pearson/Benjamin Cummings (most recent edition).</p>