Carcinogenesis, Fall 2015  
ANIMLSCI 697C (Course#40267)  
Lectures are on Tu/Th, 1-2:15 pm  
Location: Integrated Sciences Building, Room 321  
Weekly discussion sessions will be held in the ISB conference rooms. Time and location will be determined.

**Instructors:**  
D. Joseph Jerry (ISB427P),  
Email: jjerry@vasci.umass.edu, Tel: x55335

1. **Course description**  
We will cover changes in the prevalence of cancer and contemporary diagnostics and treatments. While these have dramatically decreased mortality, cancer continues to claim more than 585,000 lives annually. Therefore, the focus will be on the mechanisms that are corrupted in cancer cells and the differences in vulnerability among tissues, the technologies used to define pathways and lessons learned. Equally important are the strategies being used to exploit the vulnerabilities of tumors for personalized and targeted therapeutics.  
**PREREQUISITES:** Students must have graduate status or instructor's permission. Students are expected to have completed courses in Molecular and Cellular Biology (Animlsci200, Biol285 or Biochem275) and Genetics (Animlsci311 or Bio283) with a grade of "C" or better.

2. **Instructional goals:**  
The focus of the course is to develop independence in critical thought related to the tools available for studying cancer mechanisms. Experimental design will be emphasized. Lectures will provide overarching concepts. Discussion sessions will be used to consider proposals by the students in response to specific studies of carcinogenesis and cancer. Collaborative learning will be encouraged for completion of out of class assignments. Exams will provide the

3. **Textbook:**  
The Biology of Cancer, 2\textsuperscript{nd} Edition; Author(s): Robert A. Weinberg; ISBN: 9780815342205  
Primary research articles will also be assigned as required readings. These will be provided electronically to students through MOODLE.

4. **Evaluation and Grading:**  
The exams will be based on the topics reviewed in class and will assess students' understanding of literature related to cancer biology as well as their ability to apply the experimental approaches to address critical questions.  
- 30% Class participation, quizzes and homework  
- 20% Exam 1 --- Lectures 1-8  
- 20% Exam 2 --- Lectures 9-15  
- 30% Final Exam --- Comprehensive (lectures 1-25) for the course material. If the grade on the final exam is higher than a mid-semester hour exam, the lower grade will be dropped and the final will be 60% of the final grade.

4. **Class schedule for Fall 2015**

<table>
<thead>
<tr>
<th>#</th>
<th>Date</th>
<th>Instructor</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Tu, Sept 8</td>
<td>Joseph Jerry</td>
<td>Overview of cell biology &amp; genetics (Weinberg, Chapter 1)</td>
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<td>2</td>
<td>Th, Sept 10</td>
<td>Joseph Jerry</td>
<td>Chemical carcinogenesis (Weinberg, Chapter 2)</td>
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<tr>
<td>3</td>
<td>Tu, Sept 15</td>
<td>Joseph Jerry</td>
<td>Retroviruses &amp; oncogenes (Weinberg, Chapter 3)</td>
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<td>4</td>
<td>Th, Sept 17</td>
<td>Joseph Jerry</td>
<td>Cellular proto-oncogenes &amp; signaling (Weinberg, Chapter 4-6)</td>
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<td>5</td>
<td>Tu, Sept 22</td>
<td>Joseph Jerry</td>
<td>Tumor suppressor genes (Weinberg, Chapter 7)</td>
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<tr>
<td>6</td>
<td>Th, Sept 24</td>
<td>Joseph Jerry</td>
<td>Cell cycle regulation (Weinberg, Chapter 8)</td>
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5. Learning objectives
The epidemiology of cancers will be considered to provide the context and the factors that contribute to carcino genesis. The course will provide an introduction to the mechanisms underlying carcino genesis. This will include the experimental approaches and interpretations. The pathogenesis and mechanisms for hematological cancers and solid tumors will be considered in depth. This will provide a comparative approach to understand the differences in mechanisms and signaling. Differences in inherited predisposition to these tumor types will also emphasize the distinct pathways. Finally, contemporary and emerging therapies will be reviewed.

6. Academic honesty policy
(URL: http://www.umass.edu/dean_students/downloads/AcademicHonestyPolicy.pdf)
Since the integrity of the academic enterprise of any institution of higher education requires honesty in scholarship and research, academic honesty is required of all students at the University of Massachusetts Amherst. Academic dishonesty is prohibited in all programs of the University. Academic dishonesty includes but is not limited to: cheating, fabrication, plagiarism, and facilitating dishonesty. [See Appendix B for detailed examples of behavior that constitutes academic dishonesty.] Appropriate sanctions may be imposed on any student who has committed an act of academic dishonesty. Instructors should take reasonable steps to address academic misconduct. [See Appendix C for some suggested ways to deal with issues of academic integrity.] Any person who has reason to believe that a student has committed academic dishonesty should bring such information to the attention of the appropriate course instructor as soon as possible. Instances of academic dishonesty not related to a specific course should be brought to the attention of the appropriate department Head or Chair. The procedures outlined below are intended to provide an efficient and orderly process by which action may be taken if it appears that academic dishonesty has occurred and by which students may appeal such actions. Since students are expected to be familiar with this policy and the commonly accepted standards of academic integrity, ignorance of such standards is not normally sufficient evidence of lack of intent.