BIOL 3307/HPHY 3307
RADIOBIOLOGY

Course Description: Survey of the effects of ionizing radiation on living matter at the subcellular, cellular, and organismal levels. PREREQ: BIOL 1100, 1101 and one of the following: PHYS 1100, PHYS 1111 or PHYS 2211.

Instructor Description: This course is an overview of current knowledge of radiobiology. You will develop a basic understanding of the effect of radiation on biological entities, from macromolecules to multicellular organisms. We will consider how cellular response to radiation is relevant to the progression and presentation of human disease.

Schedule: 10:00 AM- 11:50 AM Tuesdays in Beckley Nursing 120

Attendance: If you are absent, it is your responsibility to check with the course instructor for lecture handouts, reading assignments, videos shown, etc. Attendance is strongly encouraged but not required. Skipping lectures and/or not reading assigned materials may have a negative impact on your final grade.

Instructor: Greg Hall. C.H.P.
Email:_____
Telephone Number:_____
Notes on office hours:

Responsible Administrator:
R. Brey Ph.D., C.H.P.
Associate Vice President Academic Affairs for Operations and Safety
Building #3 Physical Sciences 123B, 208-282-2667, Breyrich@ISU.EDU

Course Webpage: All course related materials and announcements are available on the course webpage on Moodle. Lectures and assignments (when applicable) can be downloaded. You are responsible for making sure that you have a profile on Moodle with the e-mail account that you check regularly.

Grading: This class will have two midterm exams and a final exam:

First midterm	30%
Second midterm	30%
Final exam	40%

Approximate Grading Scale:

A (93.0 - 100%), **A-** (90.0 - 92.5%), **B+** (87.0 - 89.5%), **B** (84.0 -86.5%), **B-** (80.0 - 83.5%), **C+** (77.0 - 79.5%) **C** (73 - 76.5%) **C-** (70.0 - 72.5%) **D+** (67.0 -69.5%) **D** (63.0 - 66.5%) **D-** (60.0 - 62.5%) **F** (0-59.5%)

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a) The instructor reserves the right to change the grading scale, and assignment weighing. Such changes will be:

i) based on profession judgement

ii) applied across the board to all students

iii) in favor of the students

Required Text: Kelsey et al. "Radiation Biology of Medical Imaging", John Wiley & Sons, 2014

Additional Resources: Hall and Giaccia, "Radiobiology for the Radiologist", Seventh edition (2012).

National Research Council "HEALTH RISKS FROM EXPOSURE TO LOW LEVELS OF IONIZING RADIATION", BEIR VII PHASE 2

Alberts, et al. "Essential Cell Biology"

Nias, A.H. "An Introduction to Radiobiology", Second Edition.

Martin, James E. Physics for Radiation Protection: A Handbook, Second Edition.

Journal Articles: To be announced during lecture

Disabilities: If you have a disability or believe that you may have a disability that requires reasonable accommodation on the part of this lecturer or ISU, please call 282-3599 to make an appointment with the ISU Center for Students with Disabilities.

HP Expectations: **Our mission is educating students so they can achieve the highest standards of the health physics profession, and solving important problems for the people and industries of Idaho and the Nation through teaching, research, and service.**

The educational objectives of the ISU Health Physics program are to produce Health Physicists with

1) broad, fundamental technical knowledge,

2) professional and public communication skills,

3) professional judgment and capability to think critically,

4) practical experience in solving applied health-physics problems,

5) the ability to work independently and in teams,

6) a professional ethic of magnitude sufficient for them to productively and successfully work in a variety of health physics settings.

The graduate program has two additional educational objectives:

1) an ability to conduct research,

2) professional tools and experience above that expected for the baccalaureate program.

The Idaho State University Health Physics Program participates in ABET Accreditation. This class serves to partially address the following ABET curriculum areas under "Proposed Program Criteria" Section I and Section II, respectively, for Baccalaureate and Masters Level Programs: #(1) radiation physics, #(2) radiobiology, #(5) principles of radiation safety and health physics, #(6) contemporary issues in health physics; and Section II, for Master's Level Programs: #(iii) an adequate foundation in statistics, applied sciences, and/or related professional practice, #(iv) advanced qualitative and quantitative problem-solving skills, #(v)other academic areas or specialties considered. This class will also in part address all 7 of the ISU educational objectives listed above.

Academic Dishonesty Policy:

The instructors expect that no student will cheat on exams. In the unfortunate event that cheating occurs, the grade for the exam in question will be assigned an F (0%) and the cheating incident may be reported. See "Why is it plagiarism?" on the Center for Teaching and Learning website: http://www.isu.edu/ctl/writing/handouts/docs/sources/plagiarism.pdf .