Course Goals:
This course is designed as an intensive course providing and introduction to nuclear engineering to graduate students with non-nuclear engineering backgrounds and returning students.

Instructors:
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This course is offered in an on line format each semester (Fall, Spring and Summer) and was jointly developed by Drs. Kostadin Ivanov and Maria Avramova. The entire course will be accessed through Penn State’s course management system referred to as “ANGEL” (A New Global Environment for Learning). You must have access to a broadband internet connection and a scanner to complete this course.

Required Textbooks:
J. R. Lamarsh and Anthony Baratta, Introduction to Nuclear Engineering (3rd edition), Prentice Hall.


Optional Reference Textbooks:

Topics Covered:
Introduction: Scope of Nuclear Engineering
Atomic and Nuclear Physics
Interaction of Radiation with Matter
Nuclear Reactors and Nuclear Power
Neutron Diffusion and Moderation
Nuclear Reactor Theory
Reactor Kinetics

This course requires a strong background in Math and Physics. Math skills should include: Calculus III, Differential Equations and Integrals. Physics skills should include: Mechanics, Electricity & Magnetism and Wave Motion & Quantum Physics.
Grading Scale:

5 Homework 30%
2 Quizzes 20%
2 Exams 50%

Homework:
There are five homework assignments each valued at 6%. You must complete the homework, scan it and upload it to ANGEL. Homework handed in up to 12 hours late will receive 30% off; homework handed in up to 24 hours late will receive 50% off. No homework will be accepted after 24 hours.

Quizzes:
There will be two on line quizzes, each worth 10% of your total course grade.

Exams:
There will be two on line exams. They are open book/open notes, however they are times exams.

Grading:
The standard grading system will be used to assign final letter grades in the course

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<td>A</td>
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Lecture Materials:
Lectures have been videotaped and are posted for you to view via streaming video. Course notes will be posted for you to view and print. You should print the lecture notes and have them in front of you when you view the lectures.

Academic Honesty:
Students are encouraged to work together on homework assignments; however, original solutions are required. If cheating or copying is suspected, all students involved will receive a zero for that assignment. Cheating or plagiarism on any graded activity will be penalized with a minimum of zero points for the assignment, and up to a failing grade in the class. Academic integrity violation reports will be placed in the offenders’ permanent files. If you are not familiar
with what constitutes an academic integrity violation, go to Penn State’s policies on the following web site:
http://www.engr.psu.edu/CurrentStudents/acadinteg.asp