Narrative Summary of this Course:

This course introduces graduate students with a background in a Model-based systems approach to the study of nuclear deterrence, compellence, and acquiescence. Quizzes are used to benchmark the student’s familiarity with the subject as they pace themselves through study and learning. Feedback via quizzes is essential in keeping track of the student’s work on assignments. As such, quizzes are not graded. This course is a 4-unit course, including lecture material, homework, references, supplemental reading, exams, and a final written paper that synthesis the knowledge that covers the background, understanding, and challenges of contemporary issues related to deterrence in the context of detection, retribution, disarmament, security, nonproliferation, or arms control. From a systems perspective, models of deterrence are researched, assessed for applicability, evaluated in terms of quantifiable measures of performance and measures of effectiveness, and then discussed.

The first four weeks of the class have homework assignments designed to incorporate reading assignments, lecture materials, and class discussions into topics that span deterrence, compellence, and acquiescence. Unlike the quizzes, homework is a forum for the student to express their scholarly knowledge in 3-5-page, single-spaced essays on a selection of topics indicated below. The instructor’s role is to comment on the logic of the arguments posed by the student, to challenge assumptions and unsupported statements written in the essay, and to suggest alternatives concepts to consider as well as additional reading, references, or sources to expand or narrow the discussion.
**All work in this course is individual work.** However, that is not to say that you should ignore the work and thinking of other students in the class (again, remembering to think of your professor as a student in the class). Copy and use freely anything that can help you, but remember to cite the work of others to give just due to their efforts. All works of authorship are copyrighted the moment you or someone else writes them down. Borrow a thought, give credit. For your final essay, you are expected to write a scholarly article of 15-20 pages, single space length that incorporates the concepts and specifics from using a model-based systems approach within the context of engineering or analyzing a system or system of systems. Each student final essay is expected to be published in a peer-reviewed journal or presented to experts in the field of deterrence, compellence, or acquiescence at a seminar, workshop, conference, or highfalutin meeting.

**Homework Assignments**

**Week 1** – Write a 3-page essay answering one question
- What is your initial listing of simple models that can be used to describe deterrence, compellence, and acquiescence?
- What are your reasons for or against the statement, Nuclear deterrence rests on a single premise: the bomb still matters?
- Why would the United States want nuclear weapons?
- Why would North Korea want nuclear weapons?

**Week 2** – Write a 3-page essay answering one question
- Is nuclear deterrence still relevant?
- How does nuclear deterrence tie in with conflicts using conventional forces and arms?
- Describe nuclear deterrence theory and its limits?
- Did nuclear weapons prevent World War Three, and do these weapons have the intended effect of stabilizing world politics by making great power war unthinkable?

**Week 3** – Write a 3-page essay answering one question
- What happened? — from its founding until 1950, the United States entered no permanent alliances, was almost completely demobilized during peacetime, pursued strategies that allowed it to be hit first and mobilize slowly and massively to win wars of attrition.
- Does strategic nuclear deterrence allow and even encourage military conflict at lower levels?
- Do you believe that one reason the United States goes to such great lengths to limit
nuclear proliferation is that it does not like being deterred or compelled by others?
  • Do you think it could be true that the United states, a state with overwhelming conventional military, economic, and soft power advantages, has shown that it will do whatever it can to prevent its freedom of action from being limited by the nuclear deterrent efforts of others?

Week 4 – Write a 3-page essay answering one question
  • What are the force and strategy requirements for nuclear deterrence?
  • What are the force and strategy requirements for nuclear compellence?
  • What are the force and strategy requirements for nuclear dominance in war?
  • Why does China today, despite an increasingly vigorous foreign policy based on an impressive economic and technological base, seem relatively sanguine about being on the short end of the nuclear balance with the United States?

Week 5 – Choose one item and write about it from the perspective of deterrence, compellence, or acquiescence as your final 15-20-page, double-spaced final article, suitable for publication. Topics are indicated below:
  • Discuss why Pakistan is developing 60km-range tactical nuclear missiles to target Indian military formations on the battlefield located within Pakistan. Contrast with the change in NATO strategy with regards to NATO’s defense of Europe.
  • Describe the nature of nuclear war when a country dictates terms to a near-peer or lesser power.
  • Gen. James "Mad Dog" Mattis appeared before the U.S. Senate Armed Services Committee and asked for clarification on U.S. nuclear weapons policy—that "fundamental questions must be asked and answered" about the nuclear stockpile, including declaring what role nuclear weapons play in national security strategy – solely as a deterrent or as something more – and whether it is time to remove land-based nuclear weapons once and for all. "Is it time to reduce the Triad to a Dyad, removing the land-based missiles? This would reduce the false alarm danger."
  • Hegel famously claimed that, “What is rational is real, and what is real is rational.” Nuclear weapons proponents are all good Hegelians. Their whole conception of nuclear deterrence is based on rationality. When a crisis occurs and leaders consider going to war, they will— according to nuclear deterrence theory—make a rational calculation of the costs and benefits and then decide what to do. In that moment of crisis and danger, in other words, they will be rational.
  • China comes into the Korean war on the side of the North Koreans. Why did not the U.S. shifting of nuclear-capable bombers to Guam, a move that was deliberately leaked to the press, deter China from going to war? Why did the U.S. not use nuclear weapons to stop the Chinese troops near the border between China and North Korea?
Have nuclear weapons somehow permanently suppressed the heretofore unquenchable desire for war? War is a savagery that only sleeps. Technology rarely changes human nature. Have nuclear weapons fundamentally altered human nature?

Assignment Due Dates

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<th>Week #</th>
<th>Assignments</th>
<th>Given</th>
<th>Due</th>
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<td>Week 1</td>
<td>Essay</td>
<td>2 April</td>
<td>10 April</td>
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<td>Week 2</td>
<td>Essay</td>
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<td>Week 3</td>
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<td>Week 4</td>
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<td>Week 5</td>
<td>Midterm Exam</td>
<td>30 April</td>
<td>4 May</td>
<td>Midterm</td>
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<td>Week 6</td>
<td>Article</td>
<td>7 May</td>
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<td>Week 9</td>
<td>Final Examination</td>
<td>Week of 27 May (TBR)</td>
<td>Final</td>
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<td>Week 10</td>
<td>Essay</td>
<td>7 May</td>
<td>8 June</td>
<td>E-5</td>
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Grading Method

The student grade is based on a combination of the assignments, discussions, Project, and Two Examinations. The weighting for each category is as follows (normalized to 100%):

- Homework Assignments...100 points total for E-1, E-2, E-3, and E-4
- Homework Assignments...100 points total for E-5
- Quizzes...0 points (always be prepared to take a quiz or answer a question)
- Midterm Examination...100 points
- Final Examination...100 points
- Notebook of your musings, questions, insights, and quips...100 points

It is my intention to work with you to build your knowledge in Systems Engineering so you have a superior understanding and proficiency. To that end, I will assist you with whatever you need to learn the materials. I commit my efforts to your success. Please take advantage of my offer.
Grading Scale & Points (on the normalized scale)
A 93+ A- 90-92
B+ 88-89 B 82-87
B- 80-81 C+ 78-79
C 72-77 C- 70-71
D 60-69 F <60

Reach Back Policy

Portland State University can better serve its students (users) and student sponsors (customers) through continued communication between graduates and faculty. This policy formalizes the typical after-graduation communications and encourages
– Students to maintain contact with professors
– Faculty to remain in contact with former students
– Faculty to assist students in post-graduate activities
– Faculty to maintain currency with the DoD customer and its needs
– Students to keep up with the latest advances in systems engineering

With Kindest Regards, Gary Langford