

FIRST-YEAR SEMINAR COURSE PROPOSAL
UNIVERSITY OF MARY WASHINGTON

Use this form to submit **FSEM 100 topics** courses for review **or any other existing course** that you wish to have designated to meet the first-year seminar requirement.

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|---|--------------------|--------------|--------------------|
| COURSE NUMBER: | HONR100K | | |
| COURSE TITLE: | GAME THEORY | | |
| SUBMITTED BY: | Julius N. Esunge | DATE: | September 10, 2014 |
| <i>This course proposal has the department's approval. (Put a check in the box to the right.)</i> | | | ✓ |

COURSE DESCRIPTION. In the space below, provide a one- to two-sentence description of this class. The description will be entered in Banner and will also be used in other publications about the first-year seminar program (such as the “Eagle Essentials” booklet).

Game Theory provides students with an opportunity to improve their quantitative skills, while simultaneously strengthening their information literacy, writing and speaking abilities. It focuses on the central ideas in the study of conflict and cooperation, using a series of in-class games.

RATIONALE. Include short statement addressing how this course meets the FSEM's basic components and new student learning outcomes (see FSEM call above), and why this course should be approved to meet the FSEM General Education requirement.

The development of this course has benefitted from a QEP grant specifically designed to increase the number of FSEMs offered at UMW. Developed by Julius Esunge and Bob Rycroft, the course meets all the expectations for FSEMs in general, and HONR100s in particular.

SYLLABUS. *Attach a course syllabus.*

SUBMIT this form and attached syllabus **electronically as one document** to Dave Stahlman (wdstahlm@umw.edu). All submissions **must** be in electronic form.

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Course Description

This course provides students with an opportunity to improve their quantitative skills, while simultaneously strengthening their information literacy, writing and speaking abilities. The course focuses on the central ideas in the study of conflict and cooperation, using a series of in-class games. Each game is preceded by required background readings which allow students to acquire the necessary material; critically read the material; and complete exercises, ahead of a very engaging class time.

Course Expectations

- A seminar implies collaborative learning. While both instructors have experience in the subject of this course, neither pretends to have all the answers, and while we will generally guide the discussion we will not provide the answers. Participants in the seminar will produce learning through active, discussion-based, participatory learning.
- Attend class regularly. We know that teachers always say you need to attend class, but it is particularly true in a seminar, where key parts of your learning will occur in class discussion. Class is where the instructors will guide and direct what you do outside of class. Class is where your peers will contribute to your learning, and where any consensus will be reached. Missing class means you will miss learning. Getting notes from a classmate will not be sufficient to replace what you have missed.
- Complete readings before we discuss them in class. Otherwise, how will you be able to contribute? Suppose no one does their homework on a given day. How do you expect the class will make progress, and how will you (or your) team perform on a particular game? You need to carry your load.
- Check your email and the course website daily to keep track of the latest assignments, etc.

Learning Objectives:

The purpose of this first-year seminar is to teach you how to explore an important, but subjective issue in depth, to evaluate the opinions of diverse experts and your classmates, and to develop your own conclusions about the issue. This is an important goal of college.

In particular, upon successful completion of this freshman seminar (FSEM), students will

- utilize a variety of research techniques to retrieve information efficiently, evaluate retrieved information, and synthesize information effectively to support their messages or arguments;
 - improve development and organization of written arguments;
 - demonstrate the ability to edit and revise in the writing process;
 - apply the basic theories and principles of oral communication; and
 - communicate effectively in a variety of settings, including public speaking and group discussion.
- Finally, you will learn how to present arguments in several oral formats.

Course Requirements

The above learning outcomes will occur through the following assignments:

- We will spend several class periods early in the semester discussing how to write papers of varying lengths and types, and how to present arguments in short to medium-length oral formats.
- **3 Short Papers** - Short (2-3 pages) papers will be assigned at approximately 2 weeks, 6 weeks and 10 weeks into the semester. Your instructor will provide formative feedback on the papers, after which you will have one week to revise the papers for a grade. You will be required to make an appointment to have your first paper reviewed at the University's Writing Center (in the Convergence Center) before you submit the paper.
 - **Paper 1** - assigned Sep 1, first draft due Sep 8, final draft due Sep 15
 - **Paper 2** - assigned Sep 19, first draft due Sep 26, final draft due Oct 3
 - **Paper 3** - assigned Oct 8, first draft due Oct 17, final draft due Oct 24
- **Research Paper** (8-10 pages) The culmination of your learning in this course will be a research paper focusing on applications of game theory in biology, economics, finance or political science. The paper will be due in three installments:
 - Nov 5 - Bring **two** hardcopies of a draft of **Part I** to a conference. Your instructor will read and critique the draft at that time. This draft will not be graded.
 - Nov 12 - Bring **two** hardcopies of a draft of **Part II** to a conference. Your instructor will read and critique the draft at that time. This draft will not be graded.
 - Nov 24 - Completed Paper Due. You need to submit both a hardcopy AND an electronic version of the paper. For the hardcopy, the paper and all charts and graphs must be computer-generated. The paper should have a title page. The honor pledge should be on

the title page. Double-space and use no smaller than a 12-point font and one-inch margins on all sides.

Remember to use footnotes where appropriate. The parenthetical style is recommended but not required. (Appropriate citation style will be discussed in class.)

The Completed Paper must be taken to the Writing Center by Nov 21. Failure to do so will result in a 10 point (equivalent to a letter grade) reduction in your grade.

Grading Standards - The paper will be graded on the basis of how well it is written. A grading rubric will be provided together with additional guidelines for each paper.

- **Class Discussion** – Class discussion is a key part of the learning in any seminar. Learning happens through the give and take of discussion, and often specific insights gleaned were not planned by the instructor; rather, they occur when participants engage seriously and deeply with the subject at hand. If you do not have experience with good class discussion, we will teach you how to do it. Since we will spend a good amount of time playing actual games, as we develop the material, your active involvement in these games would count as part of the discussion. Such involvement includes, but is not limited to being a participant in a game, evaluating the strategies of an individual or a team, determining potential rewards and payoffs.
Class discussion will be evaluated on four criteria:
 - (1) How often you participate and the quality of your contribution. Note that asking good questions is as valuable to the discussion as providing good answers.
 - (2) The degree to which you incorporate the course readings into your comments and questions.
 - (3) The energy, enthusiasm and seriousness you bring to class sessions, and
 - (4) The degree to which you function as a “civilized” member of our learning community.We will not be keeping score of every remark you make or every class you attend. Rather, we will be looking for consistency over the semester.
- **Class Presentations** -- The presentations will be based on the topics of the research paper and will take place the final two weeks of the semester. You will form a team with others in the same area like you. Details of how to prepare for the talks and how they will be conducted and graded will be provided in class. You are encouraged to make use of the services of the University’s Speaking Center (in the Convergence Center) as you prepare for your presentation.
- **Blog Reflections** - As part of the *UMW Domain of One’s Own*, you will be assigned your own domain and blog. You will be expected to write a blog post (or respond substantively

to someone else's post) at least once a week. Sometimes the instructors will provide prompts. Otherwise, you may blog about what you are reading, writing or thinking about the course. At the end of the term, you will select a portfolio of 12 posts (or comments) to be evaluated for a grade, along with a reflection of what you think you have learned.

Grades

Your final grade in this course will be determined by the following weights:

- 3 Short Papers (30%)
- Research Paper (30%)
- Class Discussion (15%)
- Class Presentation (15%)
- Blog Reflections (10%)

Plagiarism and the Honor Code

We assume you are taking this course because you have a serious interest in learning. Plagiarism means taking credit for someone else's work. Plagiarism may be intentional or accidental. It goes without saying that plagiarism is wrong, since it implies that you are being dishonest or lazy. Serious students do not plagiarize. Enough said.

Course Outline

I. Preliminaries

1. Introduction to Blogging and the UMW *Domain of One's Own* Initiative
2. Introduction to Effective Class Discussion
3. Research and Writing: Finding, analyzing and incorporating good material in your papers (Library and Writing Center staff visit class)
4. Public Speaking: How to present an argument orally (week 10 - Speaking Center visitor to class).

II. Particulars

- I. Introduction to Game Theory
 - a. The Pioneers of Game Theory
- II. One-Period Games
 - a. Dominant and Dominated Strategies
 - b. Nash Equilibrium
 - c. The Prisoner's Dilemma
 - d. Multiple Equilibria

- e. Mixed Strategies
- f. The Max/Min Strategies
- III. Repeated Games
 - a. Finitely Repeated Games
 - b. Infinitely Repeated Games
- IV. Sequential Games
- V. Strategic Moves, Credibility, and Commitment
- VI. Student Presentations