**Fall 2015**            **ECON 630: Mathematical Economics I**            **Dr. Adam A. Millsap**
                                    **Thursday 7:20 – 10:00 PM, ARLFH 111**

**Objective:**

To introduce and explain the mathematics required for economic analysis. After completing this course the student should understand the mathematics used in basic consumer theory, production theory, and game theory and will feel comfortable reading many academic journal articles in economics. Topics covered include algebra, geometry, set theory, series, differential calculus, integration, and linear algebra. The mathematical tools covered are applied to various economic problems.

**Texts:**

**Required:**
Jacques, Ian, *Mathematics for Economics and Business*, 7th Ed.    ISBN: 978-0273763567

**Highly recommended:**
Dowling, T. Edward, *Schaum's Outlines Introduction to Mathematical Economics*, 3rd Ed. ISBN: 007-135896-X

**Optional:** This book contains much of the same material as Jacques but is more formal in its presentation. Chiang, C. Alpha & Kevin Wainwright, *Fundamental Methods of Mathematical Economics*, 4th Ed. ISBN: 007-0109109

We will also work through the mathematical models of several academic articles. I will assign those at the appropriate time.

**Communications:**

**Office:  TBD, but I will hold office hours somewhere on the Arlington campus.**
**Office Hours:**   Thursday 6:00 PM – 7:00 PM, Wednesday 1:00 PM – 2:00 PM
                              - *I am also willing to meet with students who cannot make the scheduled office hours on an appointment basis. Please contact me to set up a time.*
**Email:**            amillsap@gmu.edu

**Attendance:**
This class is quite large so I will not be taking attendance on a regular basis. However, attendance is strongly recommended.  I intend to arrive on time, and I expect you to do the same. In the event I am not on time, please wait 10 minutes for me to arrive.  If you miss a class, it is your responsibility to obtain any missed notes, assignments, or any other information discussed in class from one of your classmates. **Please turn off or silence ALL phones before entering the classroom.**

**Each of you are expected to conduct yourself according to George Mason's Honor Code:**

*"To promote a stronger sense of mutual responsibility, trust, and fairness among all members of the Mason community, and with the desire for greater academic and personal achievement, we, the student members of the university community, have set forth this honor code:"*

**Student members of the George Mason University community pledge not to cheat, plagiarize, steal, or lie in matters related to academic work.**

Unless stated otherwise, any graded work for this class must be your own.  Moreover, you may not reuse work from other classes.  If you're unsure about a particular action you are considering, then please ask me about it. **I aggressively pursue appropriate university policies if the need arises.**

**Students with Disabilities:**
Appropriate accommodations will be made if you have documented disabilities. For the relevant university policies and procedures, see **http://ods.gmu.edu/students/services.php** By Sept. 17th, you must present to me a letter from Disability Services documenting the disability and requesting specific accommodations. It is also your responsibility to give me one-week's written notice (e.g. via email) prior to each instance in which an accommodation will be requested. Accommodations are not retroactive.

**Facebook Group:**
I have created a Facebook group for this class. The purpose of the group is to facilitate discussion among the members of this class. You can use it to ask questions about homework, set up study groups, share articles/videos that are pertinent to the topics we are covering in class etc. I will also share material with you over the course of the semester and set up reminders about homework and tests. I encourage you all to join it. **You can find the group by searching for Dr. Millsap's economics group on your Facebook feed. I reserve the right to remove any content that is inappropriate and to remove any person from the group who does not behave in a manner befitting an educated, civilized adult.**

**Questions:**
I understand the pressure of not understanding material the first time it is presented, as well as not wanting to ask a question in front of 40+ other students. While I *highly encourage* questions during the lecture, I also welcome everyone in the class to write down questions during lecture and e-mail them to me. We will go over such questions during the following class. I will not reveal who asked what questions.

**E-Mail Policy:**
I check my email quite frequently during the day. However, any email I receive after 6PM may not be answered until the next day so keep that in mind. I also realize that sending me an email is much cheaper than trying to figure things out on your own or coming to see me in my office. That being said, please do not email me every question you have. If I feel that people are abusing the use of email I will put a freeze on answering them. You are all adults now; try to figure things out on your own first.

**Coursework:**
- **Homework** - I will assign homework during the semester as needed to reflect the material covered in lectures or in the readings. I encourage you to work with your classmates on the problem sets, but each of you must submit an individual copy of the assignment. Make no mistake; encouragement to work together does **not** imply that copying the work of others is acceptable. The objective of collaborative homework is to learn through discussion.

- **In class exercises** – I will assign practice questions during the lecture. The purpose of these questions will be to reinforce topics, introduce a new topic(s), or both. They will not directly count as part of your grade but I strongly recommend that you attempt them in order to identify any gaps in your understanding of the topic(s).

- **Quizzes** – There will be 4 – 6 quizzes during the semester. They will be announced and will take place at the beginning of the class period. Quizzes must be done individually.

- **All work for credit is covered by the Academic Integrity policy.** I do not accept late work. Failure to submit the work before the due date will result in a grade of zero for that assignment. **As a general rule there will be no make up assignments and no extra credit**.

**Grading:**
Your grade will be based on the homework and exams. The weights are as follows (may change):

| | |
|---|---|
| Midterm 1 | 20% |
| Homework/quizzes | 45% |
| Final | 35% |
| Total | 100% |

The tests WILL BE CUMULATIVE.

**No makeup exams will be given. If you miss the midterm the weight for that test will be applied to the final. For example, if you miss midterm 1 the final will count for 55% of your grade. I do not recommend skipping the midterm based on the thought that you can just do well on the final. The final exam is required. However, if you miss the final due to an _emergency_ please notify me. I will decide what constitutes an emergency so I recommend not taking any chances. If it is not an emergency you will be given a "0" on the final and fail the class.**

**Grading scale (may change):**

$$A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F$$

I will use the grading scale above as a starting point. As I gather more information from each of you through the assignments and midterms I may adjust the scale to ensure that the class is evaluated appropriately. Any adjustments will only improve the overall score distribution and will not move anyone down a grade.

**General advice:** This class can be tough. If you don't put in much effort you will likely get a C at best. Read the book, work problems, and ask questions if you don't understand something.

**Tentative Course schedule (Some topics will take multiple class periods):**

**Lecture 1: Jacques Ch. 1**
**Lecture 2: Jacques Ch. 7**
**Lecture 3: Jacques Ch. 2**
**Lecture 4: Jacques Ch. 3**
**Lecture 5: Jacques Ch. 4**
**Lecture 6: Jacques Ch. 5**
**Lecture 7: Jacques Ch. 6**
**Lecture 8: Jacques Ch. 9**
**Lecture 9: Set theory and some formal mathematic notation. I will provide notes.**

**Once we have completed Jacques, I will use the remainder of the semester to work through some economic models from academic articles so that you can apply the skills you have learned.**

**Disclaimer**: I reserve the right to make changes to any part of this syllabus at any time. You will be notified of any changes as soon as possible.