**EconS 536, Applied Statistics and Econometrics for Finance (3 credits)**

 **Fall 2017**

**Instructor: Vicki McCracken**

Office Hours: **T (Tues)** 2:45 – 5 pm

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**Teaching Assistants: TBD**

**Course Website:** Blackboard <http://learn.wsu.edu/>

**Class Hours and Rooms**: *T Th, 9:10 – 10:25*

**Prerequisites:** Admission to the MS in Finance Program; or permission of instructor. Recommended preparation: 3-credit introductory course in Statistics, (Equivalent of MgtOp 215), one 3-credit courses in economics (Microeconomics or Macroeconomics), 3-credit course in Mathematics (with calculus), and 3-credit course in introductory Finance.

**Textbook** (required that you have access to the material in the text):

*Econometrics by Example, 2nd Edition by Damodar N. Gujarati, Palgrave Macmillan, 2015, ISBN 978-1-137-37501-88.* The Textbook will be available for purchase at The Bookie.

**Other Required Materials:**

Required materials such as homework assignments, handouts, lecture overheads, and readings will be posted on Blackboard: <http://learn.wsu.edu/> .

Students must have access to STATA, statistical computer program. **STATA 14** is available for purchase at GradPlan pricing (student-pricing) by students enrolled and faculty teaching at Washington State University. Details on semi-annual or annual purchasing by students can be found at <http://www.stata.com/order/new/edu/gradplans/student-pricing/>

**Course Description and Goals:**

This course will take a data and problem driven approach, giving the student the skills to formulate, estimate, and interpret models that address problems in the area of finance and financial economics. While focused on problem solving, the course will also provide the student with an intuition behind the theoretical concepts. The course will review relevant basic statistics and probability concepts, and apply these to linear regression, regression diagnostics, and time series econometrics.

This course will help prepare the student to be a successful professional in finance, economics and related fields, providing analytical tools that are highly sought after in the workplace. Our overall teaching goals are to help the student build a strong foundation of knowledge in the basic principles of applied econometrics and to help the student develop critical thinking and problem solving skills in applying these quantitative principles in future scenarios.

**Grading and Course Requirements:**

*Grade Components:* Class Participation/Discussions/Quizzes 5%

Homework Assignments 15%

Lab Assignments 15%

Examinations 65%

[2 midterms (30 and 35%, respectively)]

*Midterm and Final Grading:* Guaranteed Grading Scale (pluses and minuses will be used):

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| --- | --- | --- | --- |
| A  | 94 – 100 %  | C  | 73 – 76.9 % |
| A–  | 90 - 93.9 %  | C–  | 70 – 72.9 % |
| B+  | 87 - 89.9 %  | D+  | 65 – 69.9 % |
| B  | 83 - 86.9 %  | D  | 60 – 64.9 % |
| B- | 80 - 82.9 % | F | Less than 60% |
| C+  | 77 - 79.9 %  |
|  |  |

A curve (in your favor) may be applied at the discretion of your professor.

* **Course Participation/Discussions/Quizzes** - Quizzes/short problems/group work will be given on a routine basis and will be graded. You are expected to keep up with the materials as the class progresses and actively participate in class discussions
* **Homework Assignments** - There will be 10 homework assignments throughout the term. NO homework assignments are dropped; you need to do all assignments. These consist of a mix of analytical problems (some will be from your textbook) and computer work. We will use EXCEL and the software package STATA, and you will generally be expected to use these (as assigned) for your computer work in your assignments. The assignments will be posted on the Blackboard site <http://learn.wsu.edu/> in the Homework Assignments folder and completed assignments will be placed into the associated drop box. Late assignments will be penalized at a rate of 20% per day that the assignment is late. After an assignment answer key is posted on the Blackboard, late assignments will no longer be accepted. You may work with your classmates for the homework assignments, but you are required to write up your own answers for the assignment. VIOLATION OF THIS IS PLAGIARISM AND WILL BE DEALT WITH ACCORDINGLY.
* **Lab Assignments** – There will be 14 lab assignments throughout the term with a 48 hour turnaround time for completion. The assignments will be posted on the Blackboard site <http://learn.wsu.edu/> in the Lab Assignments folder and completed assignments will be placed into the associated drop box Your lowest lab assignment grade, not including the last lab (which is worth double points), will be dropped. In the labs you will be using relevant techniques to analyze data and estimate econometric models (utilizing the software package STATA and EXCEL).

* **Examinations** - There will be an inclass midterm exam at approximately 7 weeks into the semester and an inclass cumulative final exam (at the scheduled time by the university).

**Student Learning Outcomes and Assessment:** The following table summarizes the major learning outcomes and assessment methods.

|  |  |  |
| --- | --- | --- |
| **At the end of this course, students should be able to:**  | **The following will address this outcome:**  | **This outcome will be evaluated primarily by:**  |
| Apply basic finance and economic concepts to identify researchable economic issues | Lectures and assigned readings | Written responses in homework and lab assignments, quizzes, and exams |
| Collect, organize, evaluate, and analyze appropriate finance and economic information/data | Lectures, assigned readings, and homework and lab assignments | Written responses in homework and lab assignments, quizzes, and exams |
| Specify and test finance and economic hypotheses | Lectures, assigned readings, and homework and lab assignments | Written responses in homework and lab assignments, quizzes, and exams |
| Utilize quantitative skills to estimate models with results that can be used for management decisions or policy recommendations  | Lectures, and homework and lab assignments | Written responses in homework and lab assignments, quizzes, and exams |

**Class Expectations and Policies:**

Be a positive contributing member of the class. Students are expected to participate in a manner that will facilitate learning as well as the learning of classmates. Mutual respect and collaborative effort are essential and will be expected at all times. Changes in classroom policies, such as changes in due dates for assignments or corrections to assignments will be announced in class and on Blackboard. Other announcements will be made on Blackboard, and hence students should check the system on a routine basis.

**Academic Integrity:**

As an institution of higher education, Washington State University is committed to principles of truth and academic honesty. All members of the University community share the responsibility for maintaining and supporting these principles. When a student enrolls in Washington State University, the student assumes an obligation to pursue academic endeavors in a manner consistent with the standards of academic integrity adopted by the University. To maintain the academic integrity of the community, the University cannot tolerate acts of academic dishonesty including any forms of cheating, plagiarism, or fabrication. Washington State University reserves the right and the power to discipline or to exclude students who engage in academic dishonesty. The following Web site can provide you with the needed resources to be successful and to avoid violating WSU’s Standards of Conduct for Students regarding academic integrity.

<http://academicintegrity.wsu.edu/students/>. Also useful is the WSU Information Plagiarism website
[www.wsulibs.wsu.edu/plagiarism/main.html](http://www.wsulibs.wsu.edu/plagiarism/main.html).

You are expected to uphold the WSU standard of conduct related to academic integrity. The guiding principle of academic integrity is that your submitted work, examinations, reports, and projects must be your own work. Plagiarism or cheating of any nature will not be tolerated. Any student caught cheating will be given an F as a final grade in this course and will be referred to the Office of Student Standards and Accountability. If you are unclear about what constitutes academic dishonesty, please see me or the Office of Student Standards and Accountability (335-4532).

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| **Students with Disabilities:** Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please visit the Access Center to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center. Location: Washington Building 217; Phone: 509-335-3417. For information about the Access Center, see their website at [**http://drc.wsu.edu**](http://drc.wsu.edu)).  |

**Other Resources:** WSU has many resources that are designed to help you be successful as a student. Some helpful campus resources include:

**Library Services**: The Holland and Terrell Libraries contain many resources for WSU students and faculty interested in Economic Sciences, many of which can be accessed through their website <http://libguides.wsulibs.wsu.edu/economics>. This includes links to data sources that might be useful in your class project. If you have any questions not answered by their website or would like to request a book or journal on any subject related to Economic Sciences, please contact Mary Gilles at gilles@wsu.edu (Office: Terrell 120E, Phone: 335-8740).

**Safety Statement:** Washington State University is committed to maintaining a safe environment for its faculty, staff, and students. Safety is the responsibility of every member of the campus community and individuals should know the appropriate actions to take when an emergency arises. In support of our commitment to the safety of the campus community the University has developed a Campus Safety Plan, <http://safetyplan.wsu.edu>. It is highly recommended that you visit this web site as well as the University emergency management web site at <http://oem.wsu.edu/Emergencies.html>

and become familiar with the information provided.

Weekly Course Syllabus

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| --- | --- | --- | --- | --- |
| Week | Topic | Readings\* | Lab | **HW** |
| 1 | Intro/Course overview/Review | Syllabus, App 2, CN-1  | Lab 1: Data Management and Basic Statistics in Excel |   |
| 2 | Review - Probability and Distributions | Ch App 2, CN-1 and CN-2 | Lab 2: Intro to STATA | HW #1 |
| 3 | Review - Estimation and Hypo Tests | Ch App 2, CN-3 | Lab 4: Hypothesis Testing | HW #2 |
| 4 | Data - Collection and Measurement | Ch 1 (1.2 only), CN-4 and CN-5 (1st section) | Lab 3: Data collection and Organization | HW #3 |
| 5 | Simple Regression - Estimation | Ch 1 | Lab 5: Linear regression in Excel and STATA | HW #4 |
| 6 | Simple Regression - Assessing Fit and Examples | Ch 1 | Lab 6: Data management and basic regression techniques in STATA | HW #5 |
| 7 | **Exam** and Multiple Regression | Ch 2 | Lab 7: Individual project data summary and analysis |   |
| 8 | Multiple Regression/ Functional Form | Ch 2 | Lab 8: Functional form selection (using own data) | HW #6 |
| 9 | Dummy Variables/Model Selection  | Ch 3 and CN-6 | Lab 9: Dummies/Alternative Model Comparison (F test) | HW #7 |
| 10 | Model selection/ Multicollinearity | Ch 4 and 7, CN-7 | Lab 10: Multicollinearity |   |
| 11 | Heteroscedasticiy | Ch 5 and CN- 8 | Lab 11: Heteroscedasticity  | HW #8 |
| 12 | Autocorrelation | Ch 6 and CN- 9 | Lab 12: Autocorrelation | HW #9 |
| 13 | Economic Forecasting and other models | Ch 16 CN-10 | Lab 13: Time Series |   |
| Thanksgiving |   |   |   |   |
| 14 | Time Series Econometrics | Ch 13 | Lab 14: Semester Summary (Lab quiz - double) | HW #10 |
| 15 | Time Series Econometrics | CN- 14 and 15 | Open Lab- Project work |   |
| Finals Week | **Final Exam** |   |   |   |

\*Readings – Text Chapter (Ch) and Appendix (App); Class notes (CN) - #.