## 1.3  What is econometics?

Quoting from A Guide to Econometrics by Peter Kennedy (The exchange originally appeared, with statistican rather than econometrican in the front of The Advanced Theory of Statistics, Vol. 2, by M.G. Kendall and A. Stuart. They attributed it to the ..ctitious K.A.C. Manderville, The Undoing of Lamia Gurdleneck.),

> "You haven't told me yet," said Lady Nuttal, "what it is your ..ancé does for a living."
>
> "He's an econometrician." replied Lamia, with an annoying sense of being on the defensive.
>
> Lady Nuttal was obviously taken aback. It had not occurred to her that econometricians entered into normal social relationships. The species, she would have surmised, was perpetuated in some collateral manner, like mules.
>
> "But Aunt Sara, it's a very interesting profession," said Lamia warmly.
>
> "I don't doubt it," said her aunt, who obviously doubted it very much. "To express anything important in mere ..gures is so plainly

Some other quotes from A Guide to Econometrics:

Econometrics is what econometricians do.

Econometrics is the study of the application of statistical methods to the analysis of economic phenomena.

What distinguishes an econometrician from a statistician is the former's preoccupation with problems caused by violations of statistician's standards assumptions; owing to the nature of economic relationships and the lack of controlled experimentation, these assumptions are seldom met.

Econometricians are often accused of using sledgehammers to crack open peanuts while turning a blind eye to data deficiencies and the many questionable assumptions required for the successful application of these many techniques.

Econometric theory is like an exquisitely balanced French recipe, spelling out precisely with how many turns to mix the sauce, how many carats of spice to add, and for how many milliseconds to bake the mixture at exactly 474 degrees of temperature. But when the statistical cook turns to raw materials, he finds that hearts of cactus fruit are unavailable, so he substitutes chunks of cantaloupe; where the recipe calls for vermicelli he used shredded wheat; and he substi-

Course Description:

Econ 7818 is an introductory course in statistics for Ph.D. students in economics. Important components include probability theory, distribution theory, statistics, estimators and estimates, properties of estimators, sampling, inference, and particular estimators such maximum likelihood and OLS. Extensive use will be made of mathematical and statistical software.

## 1.4   Web page:

My web site is located at  at??  From it you can link to the web page for Econ 7818, or you can go directly to web page for the course at at??  .

All assignments, review questions, additional readings, lecture notes, etc. will, hopefully, be made available at this site on an as-need basis.

## 1.5   Text and readings:

The text for this course is Alexander Mood, Franklin Graybill, and Duane Boes, Introduction to the Theory of Statistics, McGraw Hill, 1974. ISBN 0-07-042864-6.

While you want to acquire your own copy of the book and cherish it forever, I have put chapters of the book on the course web page. The book is no longer in print, but used copies are available from book sellers on the web.

The text for 7828 is A Course in Econometrics, by Arthur S. Goldberger. Harvard University Press, 1991. I recommend you get it now rather than waiting.

### 1.5.1   Other texts that I might have chosen for this course include:

Takkeshi Amemiya, Introduction to statistics and econometrics, Harvard University Press, 1994, ISSBN 0-674-46225-4

### 1.5.2

### 1.5.3   For those who are considering additional books, I recommend:

Peter Kennedy, A Guide to Econometrics (4th edition), MIT Press, 1998.
ISBN 0-262- 61140-6. This is an excellent book that provides, in words, the big picture. I recommend it highly. It will help with this course, and help even more in 7818

Russell Davidson and James MacKinnon, Estimation and Inference in Econometrics, Oxford University Press, 1993. I recommend this book to those who want an advanced text in theoretical econometrics. It is well written. Russell and I went to graduate school together. This book is not for the faint of heart.

### 1.5.4

### 1.5.5   Additional reading and notes:

I will assign some additional readings for some topics. I will try to put these on the course web page.

## 1.6

## 1.7   Software:

The computer software Mathematica will be an important tool. You will use it in many assignments. For example, you will use it to investigate distributions such as the Normal, Chi-Square, Student t and F distribution: distributions that play crucial roles in econometrics.

You will use it to draw random samples from these and other distributions. You will use it to write your own code for different econometric estimates, to

## 1.8 Prerequisites:

A su¢ cient condition for being in this course is that you are a new Ph.D. student in economics here at C.U. But, it is not a necessary condition: graduate students in business often take this course. Sometimes other people who simply have too much free time.

You need to get by and do well whether your preparation for 7818 is "not enough", "just right" or "too much". I won't use matrix algebra in this course, but I am sure it will be used in your upcoming econometrics courses, so you might want to sleep with a matrix-algebra book.

## 1.9 Class format:

Lecture/problem solving/discussion/computer/estimation

I very much believe that one learns statistics by doing statistics - this is true

## 1.10  Details of grading:

There will be problem sets, short projects and quizzes. Some of these activities will be done using Mathematica or some other mathematical software. Some of these activities will be done in groups larger than one. Some of these activities will be take-home, some will be done in class.

Each will be graded on a 10 point scale. Your best ( — 2) grades on these activities will constitute 50% of your course grade, the midterm 20%, the …nal 25%, and 5% will be set aside for participation (I will be the "decider" when it comes to how much you participated). The …nal will be cumulative and might have two parts: a take home part and an inclass part (it has had two parts the last two year).

Wrt the problem sets, short projects, and quizzes: I do not accept things late. Note that you could, in theory, blow o¤ two of these assignments and still have a perfect grade on these assignments.

This will be a course where writing down a bunch of math will not su¢ ce. Explaining, in words, what you are doing and what it means is more important. The emphasis will be on understanding, explaining, and applying, not on regurgitating a bunch of math and symbols. So, your ability to write is important. Some of you will have …nd explaining stu¤ in words the most di¢ cult part of the course.

## 1.11   Questions:

I hope to provide you with review questions for each section of the course, maybe even some answers. Knowledge of these review questions will be will be helpful when taking exams.

I strongly encourage you to write out answers to all the review questions and discuss them with you classmates. You will want to form study groups. Bouncing ideas o¤ each other will help you to determine if your thinking is correct, and will make you a better explainer.

In class I will ask many questions. I also expect you to ask questions. In addition to these question, I will sometimes give you the opportunity to earn, or lose, points by verbally answering speci…c questions. Participation in this latter activity is completely voluntary.

## 1.12   Advice for quizzes, assignments and exams:

As I said above, your answers to most questions should include a signi…cant proportion of explanatory words, not just math. Some of you are likely more comfortable keeping your words to a minimum and simply writing down a bunch of math. This is a bad idea. If the math is correct but there is no explanation, the answer is de…cient.

Explaining what you are doing in words is critical, so is writing down the appropriate equations and showing enough of your math so that I do not have to do math to detemine if your answer is correct or incorrect. The issue is not just whether an answer is correct; just as important is how much e¤ort it takes to …gure out if it is correct.

There is always the issue of what the grader should assume you know when you don't state it. Forcing me to make these calls is generally a bad idea. If I can assume some calculation or process was obvious to everyone in the class at

Knowing the material is not suﬃcient. You all need to convey that knowledge to the reader. So writing skills and the ability to communicate on the page are as important knowing what calculations to do and doing them.

## 1.13    Group Assignments:

Some of the assignments will be done in groups. I will tell you in advance if an assignment is a group endeavor. The group will work together and just turn

## 1.14  O¢ce hours, contacting me outside of class, and answering questions outside of class

My o¢ce hours will on Monday from 1:30-2:15 and Wednesdays from 2:40 to 3:45, and by appointment. If you can't make it to an o¢ce hour and want to see me, catch me before or after class to schedule a time. My o¢ce is Econ 122. Please feel free to contact me by E-mail at Edward.Morey@Colorado.edu about setting up an appointment. Sometimes it will take a day or so for me to get back to you.

You can also E-mail me questions. I will try to answer them but will not always have the time or the knowledge to do so. If I do respond, I will typically send your question with my response to all members of the class. Information is a public good, so passing it along to everyone is, in general, e¢ciency increasing.

Keep in mind that if you have a question, you can E-mail your question to everyone in the class, including me. I encourage this. I suspect that some of your fellow students will have better answers than mine. People can comment on and add to the answers of others.