**Professor:** Roberto Duncan

**Contact information:**

E-mail: duncanr1@ohio.edu

Office phone: (740) 593-2040


**Office Hours:** Monday and Wednesday 3:00-4:30 PM or by appointment.

**Course meetings:** Monday, Wednesday and Friday, 12:55 PM to 1:50 PM, Bentley 215 (sometimes in Bentley 012 for lab sessions).

**Class Number:** 9613

**Description and objectives:** The course is designed to provide students with a background in econometric theory at graduate level with a focus on time series. Our objectives are (i) to learn tools to describe and quantify economic regularities, (ii) to provide preparation for testing hypotheses about economic theory, and (iii) to introduce forecasting techniques and forecasting evaluation methods.

**Course web page:** There will be a web page devoted to the course. To find it just go to

http://www.ohio.edu/people/duncanr1/teaching.html

There you should be able to find and download the syllabus, lecture notes, homeworks, and other relevant information about the course.

**Reading materials:** I will upload lecture notes that will be the base of our classes so you can print them off and bring them to class. These lectures notes will be based on


We will also follow other highly recommendable textbooks:

  (www.ssc.wisc.edu/~bhansen/econometrics/Econometrics.pdf)

The course web page will include other materials. Students are expected to have completed the readings prior to lecture. The lectures, classroom activities, and all materials associated with this class and developed by the instructor are copyrighted in the name of Roberto E. Duncan on this date (01/13/2014).

**Exams:** There will be two exams. The use of notes, books, calculators, or any other similar material will be determined prior to each exam. The first midterm exam is on February 21 during class time. The second midterm exam is on April 4 during class time. Please arrive ten minutes early to the assigned classroom. Make-up exams will only be given under exceptional circumstances. Notice must be given before the date of the exam (as early
as possible). If there is a make-up, this might be a cumulative oral exam and will be scheduled at the end of the quarter. The final exam is actually a project due on Friday, May 2, at 3:10 p.m.

**Homeworks**: Homeworks will be due every week or so at the beginning of lecture. These homeworks will include both problem solving and computer tasks. The computer exercises will involve programming in R, a programming language and software environment for statistical computing. Only printed (not electronic) homeworks are accepted. There is a late-homework policy. Late homeworks will be accepted for partial credit, but only up to two days after the due date. Every day the discount will be 15%. If, for example, you turn it in a few minutes later or up to 24 hours later than the due date and time, then your maximum score will be computed over 85% of the original total points. If you are going to turn in any homework after the due date you must coordinate with me in person or by email and give it directly to me (do not use any mailbox). You are allowed and encouraged to discuss course material including homeworks with your classmates or form a study group. But only you must turn in the solution to each homework problem. If you solve a homework with other classmate(s), you should cite that on the front of your homework. Even though this does not affect your score, it is a honor code highly appreciated. Handwritten solutions are accepted. Just make sure that they are legible, neat, and organized, otherwise you might lose points. Do not forget to show your work in all exams and homeworks.

**Grading**: The course grade will be based on (i) the simple average of the exams (including the project) and (ii) the average of homeworks. The exams will be worth 70% and the homeworks will count for 30%. That is, Score=0.7×(Average of Exams)+0.3×(Average of Homeworks). Once your course score is computed, your course grade will be determined approximately as follows: A and A- (scores at the top 30%-40% of class), B+, B, B-(30-40%), C+, C(20-30%), and C-(0-10%). There is a regrading policy. You can request regrading of any homework or exam during a limited period. You have one week for any regrading request starting from the day that I give exams or homeworks back in class. If you were absent such a day you will need to visit me during office hours or set an appointment to get your exam or homework. To optimize time, regrading requests will only be written. You can use one of the pages of the exam or attach a page.

**Attendance and office hours**: Even though attendance at the lectures is not mandatory, it is highly recommendable. In addition, you are responsible for any announcement, reading material, written homeworks, etc. mentioned, covered, or assigned in class. If you miss a class, it is your responsibility to get notes and other relevant information from your classmates. To gain efficiency, it is worth mentioning that office hours do not replace a lecture for a student who missed a class. The objective of office hours is to solve specific doubts and questions about the topics and concepts addressed in lectures. Again, feel free to stop by during my office hours or arrange an appointment by email. No class on March 21.

### Course outline

<table>
<thead>
<tr>
<th>Sections</th>
<th>No. of Lectures</th>
<th>Readings</th>
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<tr>
<td>1. Introduction and review</td>
<td>3</td>
<td>G(3-6, 14, App.A,B,C), BH(1), FD(6)</td>
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<tr>
<td>2. Stationary ARMA models</td>
<td>7</td>
<td>G(5, 20), BH(16), SW(14), JH(3), FD(7-9)</td>
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<tr>
<td>3. Models of nonstationary time series</td>
<td>7</td>
<td>G(21), SW(14), FD(5,13), JH(15)</td>
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**First midterm exam** (February 21)
- 4. Multivariate models and endogeneity | 5 | G(8), SW(12,15), BH(8), FD(10-11) |
- 5. Vector autoregression models | 5 | G(9, 20), BH(16), SW(16), JH(10-11) |
- 6. Cointegration | 3 | G(5-6), SW(16), JH(19) |

**Second midterm exam** (April 4)
- 7. Running your own project | 2 | AS(11), SW(9) |
- 8. Forecast evaluation | 3 | G(7), SW(8), FD(12) |
- 9. Nonlinearities (if time permits) | 3 | G(14), SW(8), FD(14), JH(21-22) |

**Final exam/Project** (May 2)

**Academic misconduct**: Academic misconduct is a violation of the Ohio University Student Code of Conduct: “Dishonesty or deception in fulfilling academic requirements. It includes, but is not limited to cheating, plagiarism, un-permitted collaboration, forged attendance (when attendance is required), fabrication (e.g., use of invented information or falsification of research or other findings), using advantages not approved by the instructor (e.g., unauthorized review of a copy of an exam ahead of time), knowingly permitting another student to plagiarize or cheat from one’s work, or submitting the same assignment in different courses without consent of the instructor. Note: An instructor may impose a grade penalty for academic misconduct and/or file a judicial referral.”