Advanced Data Analytics Syllabus

Advanced Data Analytics

Syllabus

- Prof. William J. Crowder, PhD, Economics, Arizona State University
- Office: 321 Business Building
- E-mail: crowder@uta.edu
- **TEXT:** Any Econometrics text will serve, but here are some that are free; Bruce Hansen's Text (Links to an external site.) is very good, Frank Diebold's Text (Links to an external site.) is more introductory but also very good.

**GRADING:** Grades will be based on five homework projects and a replication paper.

**POINTS:**

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework Assignment # 1</td>
<td>10</td>
<td>Sunday, September 6, 2020</td>
</tr>
<tr>
<td>Homework Assignment # 2</td>
<td>10</td>
<td>Sunday, October 4, 2020</td>
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<tr>
<td>Homework Assignment # 3</td>
<td>10</td>
<td>Sunday, October 25, 2020</td>
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<tr>
<td>Homework Assignment # 4</td>
<td>10</td>
<td>Sunday, November 15, 2020</td>
</tr>
<tr>
<td>Homework Assignment # 5</td>
<td>10</td>
<td>Sunday, November 29, 2020</td>
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<tr>
<td>Replication Project</td>
<td>50</td>
<td>Sunday, December 13, 2020</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**GRADE SCALE:**

100-90%    A
89-80% B

79-70% C

69-60% D

Below 60% F

Class Schedule:

1. Intro to Matrix Algebra and The Basic Linear Model
2. Departures - Heteroskedasticity and Autocorrelation
3. Endogeneity and Instrumental Variables
4. Time Series Analysis of Stationary Data
5. Time Series Analysis of Non-Stationary Data

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.

Course Objectives

This course will provide practice in applying statistical techniques to data analysis.

Course Requirements

Homework Projects: The are five (5) different applied projects due throughout the semester. Each project will require data collection, statistical analysis and/or hypothesis testing. The focus is on using econometric tools to answer relevant questions. The completed project submission from the student should include the following: 1) type written answers to the questions or problems assigned, 2) any computer code/script/program used to complete the assignment. The files are then to be zipped together using Winzip or Winrar and then submitted via Canvas using the Assignment upload link.

Replication Project: Each student is required to complete a 10-20 page replication and extension project. The idea is to choose from existing published work that can be replicated and extended. The focus should be on explaining the problem at hand and the statistical techniques used to conduct the analysis. The target audience for these reports is a non-technical manager, so that reports must be written in terms that can be understood and disseminated among non-expert colleagues and managers. For more details please see the Module pertaining to the Replication Project.
This is a self-paced course. You may complete all assignments *soon* as you want. But there are due dates and all assignments must be completed and returned to the instructor by the respective due date. **NO** late assignments will be accepted!

**Feedback**

Written assignments will be graded and returned within 10 days of submission.

Instructor response to e-mail will be within 48 hours.

Discussion board responses from the instructor will depend on the context, but direct questions to the instructor should be answered with 48 hours.

**Attendance**

At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator in student success. Each faculty member is free to develop his or her own methods of evaluating students’ academic performance, which includes establishing course-specific policies on attendance. Attendance will not be taken as part of the grading procedure. However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients “begin attendance in a course.” UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Blackboard. This date is reported to the Department of Education for federal financial aid recipients.

**Non-Payment of Fees Policy**

Students who have not paid their fees by the census date and are dropped for non-payment cannot receive a grade for the course under any circumstances. Emergency loans are available from the Financial aid Office.

**Academic Integrity**

Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

*I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*
I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code in their courses by having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System Regents’ Rule 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University. Additional information is available at https://www.uta.edu/conduct/ (Links to an external site.).

**Students with Disabilities**

UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA), and Section 504 of the Rehabilitation Act. All instructors at UT Arlington are required by law to provide “reasonable accommodations” to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the Office for Students with Disabilities (OSD). Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

The Office for Students with Disabilities, (OSD) www.uta.edu/disability (Links to an external site.) or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability (Links to an external site.).

Counseling and Psychological Services, (CAPS) www.uta.edu/caps/ (Links to an external site.) or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

**Grade Grievances**

You have one calendar year from the date the grade is assigned to initiate any grievance. The normal academic channels are 1) the course instructor, 2) department chair, 3) academic dean, and 4) the Provost.
Electronic Communication

UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php (Links to an external site.).

Drop Policy

Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. Students will not be automatically dropped for non-attendance. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (https://www.uta.edu/records/courses/policies/add-drop-withdrawal.php (Links to an external site.)).

Student Feedback Survey

At the end of each term, students enrolled in face-to-face and online classes categorized as “lecture,” “seminar,” or “laboratory” are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback via the SFS database is aggregated with that of other students enrolled in the course. Students’ anonymity will be protected to the extent that the law allows. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit http://www.uta.edu/sfs (Links to an external site.).

Non-Discrimination Policy

The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos (Links to an external site.).
Title IX Policy

The University of Texas at Arlington (“University”) is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. For information regarding Title IX, visit www.uta.edu/titleIX (Links to an external site.) or contact Vice President and Title IX Coordinator at (817) 272-7091.

Campus Carry

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit http://www.uta.edu/news/info/campus-carry/ (Links to an external site.)

Student Support Services

UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring (Links to an external site.), major-based learning centers (Links to an external site.), developmental education, advising and mentoring (Links to an external site.), personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at http://www.uta.edu/universitycollege/resources/index.php (Links to an external site.).

Course Summary:

<table>
<thead>
<tr>
<th>Date</th>
<th>Details</th>
<th>Due Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sun Sep 6, 2020</td>
<td>Assignment Homework #1</td>
<td>11:59pm</td>
</tr>
<tr>
<td>Sun Dec 13, 2020</td>
<td>Assignment Replication Paper</td>
<td>11:59pm</td>
</tr>
</tbody>
</table>
### Course assignments are not weighted.