Instructor(s): Kay-Yut Chen

Office Number: 519

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Faculty Profile: https://mentis.uta.edu/explore/profile/kay-chen

Office Hours: Wed 1-2pm, appointment encouraged

Section Information: BSAD 6392-001

Time and Place of Class Meetings: Wed 2-4:50pm, COBA 140

Description of Course Content:

The goal is to train PhD students to develop “designer” mathematical models for their research. A wide range of modeling techniques including game theory in economics, discrete choice models in marketing and dynamical stochastic models will be discussed. The course is divided into 3 parts. The first is mathematical model development focusing on matching mathematical framework and features to the underlying research setting. Second is how to determine the implication of the model through analytical analysis and simulation and how to develop the accompanying data science, econometrics, and statistical techniques to estimate the model and answer research questions through data. Last is how to justify and position mathematical models for top tier journals (e.g. Management Science). A wide range of examples in behavioral economics, operations management, information systems and marketing science will be used to demonstrate relevant techniques and thinking step by step.

This is not a lecture-focused and knowledge transfer kind of class. This is a class by doing. There is no homework, no tests and no exams. The class consists of a series of projects. The key principal is that students need to be able to debug and complete your project on your own.

Projects are drawn either from the student’s actual research work, or previous published research. Data will be provided from the instructor’s past projects if needed.

Student Learning Outcomes:

1. The student will be able to develop a math model for research in a business school discipline
2. The student will be able to implement such models in R or another platform.
3. The student will be able to estimate such models. The main method of estimation is maximum likelihood.
4. The student will be able to perform statistical tests and determine which part of the model is needed (significant), and select the appropriate model from a potential list.
Required Textbooks and Other Course Materials:

- There is no text book.
- Each student is assumed to have a laptop that can run R or another platform.
- R is the recommended software to be used in the class. Other platform can be used subject to approval.
- R Studio is the recommended frontend, but it is up to the student to decide what front-end, if any, to use.

Descriptions of major assignments and examinations:

- Each student will have their own project, preferably drawn from their own research. If that is not feasible, projects drawn from other venues will be used.
- For their projects, the student needs to:
  a) create a proposal of the project, and present in class
  b) present check-points of the projects regularly
  c) hand in a write-up of the modeling project
- Examples will be drawn from existing business research literature. Students will be assigned papers and asked to present the math formulation & modeling parts.

Attendance: At The University of Texas at Arlington, taking attendance is not required. Rather, 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. As the instructor of this section, I will take attendance. However, attendance does not affect grades.

Grading:

Evaluation will be composed of two components:
1) Class project, including technical sophistication, the correctly recovery of model parameters, and appropriate defense of modeling approach and assumptions and other factors (70%)
2) Project presentation (30%)

The instructor reserves the rights to adjust the final results at his discretion.

Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels; see “Student Support Services,” below.

Make-up Exams: There is NO exam.

Grade Grievances: Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog. Please see http://catalog.uta.edu/academicregulations/grades/#undergraduatetext

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
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 (http://wweb.uta.edu/aaofao/).

Disability Accommodations: 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 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.

Counseling and Psychological Services, (CAPS) www.uta.edu/caps/ 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.

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.

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 or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or jmhood@uta.edu.

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/.

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.

**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/

**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.

**Final Review Week:** for semester-long courses, a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabus. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Emergency Exit Procedures** Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is to the left of the door and up the stairs. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

**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, major-based learning centers, developmental education, advising and mentoring, 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.

**The IDEAS Center (2nd Floor of Central Library) offers free tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. To schedule an appointment with a peer tutor or mentor email IDEAS@uta.edu or call (817) 272-6593.**

The college of business has statistics tutoring in room 136.
## Course Schedule

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<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/22</td>
<td>Introduction &amp; paper assignment</td>
</tr>
<tr>
<td>2</td>
<td>1/29</td>
<td>paper presentation + project updates</td>
</tr>
<tr>
<td>3</td>
<td>2/5</td>
<td>paper presentation + project updates</td>
</tr>
<tr>
<td>4</td>
<td>2/12</td>
<td>paper presentation + project updates</td>
</tr>
<tr>
<td>5</td>
<td>2/19</td>
<td>paper presentation + project updates + approval of projects</td>
</tr>
<tr>
<td>6</td>
<td>2/16</td>
<td>paper presentation + project updates</td>
</tr>
<tr>
<td>7</td>
<td>3/4</td>
<td>paper presentation + project updates</td>
</tr>
<tr>
<td>8</td>
<td>3/11</td>
<td>spring break</td>
</tr>
<tr>
<td>9</td>
<td>3/18</td>
<td>paper presentation + project updates</td>
</tr>
<tr>
<td>10</td>
<td>3/25</td>
<td>paper presentation + project updates</td>
</tr>
<tr>
<td>11</td>
<td>4/1</td>
<td>paper presentation + project updates</td>
</tr>
<tr>
<td>12</td>
<td>4/8</td>
<td>paper presentation + project updates</td>
</tr>
<tr>
<td>14</td>
<td>4/15</td>
<td>paper presentation + project updates</td>
</tr>
<tr>
<td>15</td>
<td>4/22</td>
<td>paper presentation + project updates</td>
</tr>
<tr>
<td>16</td>
<td>4/29</td>
<td>paper presentation + project updates</td>
</tr>
<tr>
<td>17</td>
<td>5/6</td>
<td>final project presentation</td>
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</tbody>
</table>

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. – Kay-Yut Chen

**Emergency Phone Numbers:** In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911.