STAT 499/699 Computational Finance

Syllabus for STAT 499/699 – Spring 2023

Instructors: Profs. Katherine B. Ensor and John A. Dobelman, with additional participation by interested faculty and scholars

Teaching Assistant: TBD <tbd@rice.edu>

Office Hours and TA sessions: Office hours and any TA sessions are by appointment.

Educational Purpose: Students in STAT 499/699 Computational Finance will be exposed to the broad array of computational finance research taking place on campus and in the larger scientific and business communities. Further, students will acquire a deeper understanding of a specific topic area in quantitative finance. The specific area changes by semester and includes topics such as resources for quantitative finance; security of financial markets; detecting and mitigating systemic risk; the role of analytics and statistics in the broader energy markets; cryptocurrencies; high frequency trading/electronic markets; robo-advising; blockchain applications; volatility and market making; sports gaming and risk management; commodities/pairs trading; market microstructure; practices of quantitative analysis in tier-I banks and the buy-side; cryptocurrency applications; practices of trading, etc.

The quantitative finance topic is selected at the beginning of the semester. Students are assigned specific readings/lectures around the topic and class time is spent on group discussions of these papers. These discussions will be student led with instructor facilitation.

Format: Bi-weekly group discussions **+** attending quantitative finance seminars on campus or in the larger Houston area.

Class meeting schedule: Classes are scheduled to meet Wednesdays from 11:00-11:50 a.m. on dates which are posted at **STAT499-699-schedule-txt**

Assignments and grading:

- Students will be expected to actively participate in the bi-weekly group discussions and will be graded on that participation.

- Students are also expected to attend a minimum of four quantitative finance seminars at Rice, around the Houston SMSA, or appropriate Webinars. Written summaries of each seminar are required.

Additional requirement for STAT 699 (graduate students): Students registered for STAT 699 will be required to help lead the conversation in the bi-weekly discussions. When appropriate, graduate students will be asked to submit a white paper to the department

archival paper network. STAT 499 students will be invited to contribute to the presentation and paper, but leadership is expected from the STAT 699 students.

Variable credit: Any student registered for more than one credit hour is expected to propose and conduct ***independent*** research culminating in a poster presented at the Center for Computational Finance and Economic Systems (CoFES) events such as the Eubank conference, or at the department end of semester poster session, as well as a white paper on the research. Any proposals for such research must be made with a detailed prospectus prior to the course drop/add date.

Modifications due to Covid-19:
Due to the prevalence of the Covid-19 virus precautions, several modifications to the course execution may be required as outlined in this paragraph. University policy is that classes will be conducted in person with strict mask and social distancing requirements as outlined in the latest Rice Covid guidelines found at https://coronavirus.rice.edu. Class is expected to be conducted in person. Some students are asynchronous, requiring the use of Zoom cloud-based recordings. The requirement for hardcopy assignment submission is in force except for asynchronous students; all assignment submissions and grading will be based on the paper and online submissions. Attendance and class participation will be assessed in class and by participation in any Zoom sessions; all participants are expected to turn on their video. Declining to use the student video will be accounted for in the class participation portion of the course grading (see applicable syllabus section on grading). Project presentations, if any, will be conducted in class or via Zoom. TA session and instructor office hour appointments will be conducted in-person (with social distancing), or online in accordance with the applicable preferences.

Disabilities: Any student with a documented disability needing academic adjustments or accommodations is requested to speak with the instructor during the first two weeks of class. All discussions will remain confidential. Students with disabilities should also contact Disability Support Services in the Ley Student Center. Further information is available at http://dss.rice.edu/.

Title IX: Rice University cares about your wellbeing and safety. Rice encourages any student who has experienced an incident of harassment, pregnancy discrimination, gender discrimination, or relationship, sexual, or other forms interpersonal violence to seek support through The SAFE Office. Students should be aware when seeking support on campus that most employees, including the course instructor/TA, are required by Title IX to disclose all incidents of non-consensual interpersonal behaviors to Title IX professionals on campus who can act to support that student and meet their needs. For more information, please visit https://safe.rice.edu or email *titleixsupport@rice.edu*

Changes to this syllabus may be published from time to time, with notice and explanation given in class and via Canvas (if used).