Faculty Presentations to Juniors

by

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&

ORFE Faculty

Monday, April 13, 2020
Handouts

• ’21 Senior Thesis Guide
• Senior Independent Projects
  (ORF 479, Spring Semester Only)
• Guide to Faculty Research Interests
Advisor Selection

- Up to 4 selections
- Other
- Topic/Interest
- Selection confirmation
Senior Thesis

• Spans both Fall and Spring Semester
  – You may NOT count the thesis as two (2) courses in the Spring so that you can take only 2 “normal courses!!!!!! NO NO NO NO Don’t even ask!!

• Work on your thesis during the summer, e.g.:
  – Write concise problem statement
  – Begin your literature search
  – Begin collecting data
    • This takes the most lead time. Start early... remember...
      – Garbage in ... Garbage out

» data needs to be as pristine as possible. It never is pristine and always biased, not just noisy.
Senior Thesis

• Academic Year Deadlines, on page 4
  – Senior Thesis Prospectus, Due Wednesday, September 16, 2020
    • Title
    • 50 Word Abstract
    • Initial Table of Contents, with Chapter & Sub Chapter and Sub Chapter Heading
    • 3-5 Page Text Describing
      ➢ Expected Effort
      ➢ Models to be used
      ➢ Sources of Data
      ➢ Key References
  – Fall Term Progress Report, Due Monday, November 2, 2020
  – Interim Progress Report, Due Monday, January 25, 2021
  – Senior Thesis, Due Tuesday, April 6, 2021
  – Thesis Symposium, Tuesday, April 27, 2021
Penalties

• Failure to meet any of these deadlines is severe!

• Your final grade, which is applied to two courses (ORF 478 twice) will be reduced by 1/3 of a letter grade for EACH day that you are late for meeting any of these deadlines.

• No Excuses! No Waivers!
Senior Independent Research

• One semester (Spring)

• “Research Prospectus” Due Dean’s date of Fall Semester
  
  – (Formal proposal of what you are going to do; same as “Senior Thesis Prospectus”)

• Final Bound Report Due Dean’s Date Spring Semester
Senior Thesis Writers Group

• ORFE Graduate Students
• Workshops
• Meetings
• Thesis Bootcamp
• Resources
• Website
  https://orfe.princeton.edu/academics/undergraduate/stwg
Research Funding

- Seas funding – October and February
- Supplemental ORFE funding
- Types of funding
  - Travel for research
  - Data
  - Equipment
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Development and application of operations research and other analytical techniques in various aspects of Autonomous Vehicles, aka "SmartDrivingCars", including

- Design of “Operational Design Domains” to best serve the needs of the people who can’t or don’t want to drive their own car... The poor, physically handicapped, mentally challenged, too old, too young. What are their special needs and desires.

- The Design, Training, Testing and Evolution of “deep learning convolutional neural networks” for autonomousCars (aka SmartDrivingCars) using Virtual Reality

- Analysis and classification of collision-free driving scenarios,

Elevators... how were they tolerated and used prior to Covid-19 and how will they be tolerated and used post Covid-19 in different communities, retail, business/office, “Trump towers for the wealthy”, residential towers for city dwellers and low income Puitt-Igoes ... Implications on the design and operation of autonomousTaxis.

“Risk assessment in the design and use of Ventilators, what we learned from Covid-19”