Computer Engineering
Graduate Students
Course Planning Advice
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Goal of this 20 minute presentation

• Key factors to keep in mind in planning course selection
• Advice is somewhat generic
  • Ph.D students:
    • Please talk to your advisors for more specific/tailored advice.
    • Ph.D advisor takes precedence over anything I say.
  • All students: Talk to more faculty to get
    • Additional inputs
    • Inputs specific to your situation
    • Information about specific courses they are teaching
• Handout:
  • List of CE Area courses
  • Note that list with graduate office might not be accurate
  • Keep an eye out for changes as and when they occur.
Course planning depends on degree objective and status

- Ph.D, already know advisor and research area
- Ph.D, don’t have an advisor yet
- Masters, Non-Thesis
- Masters, Thesis
- Non-CE student taking some CE courses.

#1. Keep course-load manageable

- Masters Non-Thesis Students:
  - At most 3 courses a semester unless you REALLY know what you are doing
  - Squeezing a 4th course to try and finish in 3 semesters can be risky.

- Ph.D students, Students on TA/RA
  - I recommend at most 2 courses, unless advisor suggests otherwise.
  - Ph.D/RA research and TA duties take substantial time.
  - If you don’t have a Ph.D advisor yet:
    - Start working towards finding one soon
    - Do a research project with professors you may want to work with
    - Control course load to leave time for all this
  - Note: international students may have to register for a minimum number of credits
    - But, you may register for Ph.D research, ECE 699, if advisor approves.
#2. Keep mix of courses reasonable

- Many CE courses are project heavy
  - Often 50% of grade based on project
  - Intense semester long projects
- Some CE courses heavy on theory (e.g., Algorithms/608).
- You also need to take Math courses.
- Balance programming heavy and math/theory courses
  - E.g.:
    - 3 programming heavy courses in a semester might be too heavy a load
    - 2 programming heavy courses, and 1 Math/Theory course may be better

Suggested mix of courses for Ph.D students

- Balance multiple goals in course selection
  - Get background in your research area by taking appropriate courses
  - Plan for Ph.D Qualifying Examination (every August)
  - Meet other course requirements

- How I advise my students:
  - Early years: prioritize courses related to research, courses that can help fill holes in your background for Qualifying Examinations (see handout)
  - Can take other courses in future years (e.g., courses to meet Math requirement, if not important for your research area)
Course selection for unattached Ph.D students

• If you are a Ph.D student without an advisor, and are not sure about your research area:
  • Very critical to find an advisor over the next year or so
  • Start thinking about it and working towards it right now
  • Do not wait until you pass the QE or finish course requirement.
• Pick courses with professors who you are most interested in working with in the early years
  • Allows you to understand if that professor would be the right fit for you
  • Allows the professor to decide if you are the right fit for her/him

#3. Learn programming *before* taking CE graduate courses

• Many CE courses heavy on programming projects
• Graduate courses usually do not have TA support – you are on your own.
• CE courses WILL NOT TEACH how to program
  • Focus is on concepts (e.g., Architecture, Compilers, OS, Networks etc.)
  • You need to do the projects to demonstrate the concepts (e.g., implement an OS scheduling algorithm)
  • You are expected to know languages like C/C++/Java/Python before hand
• If you do not have strong programming background and want to shift to CE
  • Please consider whether this is an appropriate objective and discuss with professors.
  • Please consider taking preparatory undergraduate programming classes
    • Will not count towards your graduation, but necessary to survive CE graduate courses.
#4. Please talk to instructors about course pre-requisites

- If you are considering taking a class, and are not sure about whether you have the background, please reach out to the instructor
- Attend the first class, and if still not sure, please meet them afterwards and discuss prerequisites.

#5. What to do if the going is rough?

- What if you find a course hard after you start?
- You are allowed to:
  - Withdraw from a course without anything negative appearing on your transcript (talk to graduate office about deadlines)
  - Withdraw from a course with Pass/Fail based on how you have been doing in that course until then
    - Talk to graduate office about deadlines
    - Be sure to talk to instructor about their expectations for Withdraw Pass.
- But, please watch out for minimum course requirements
  - International students may need to be registered for minimum # of courses
  - Talk to the graduate office to discuss your situation.
Summary

- Plan selection differently based on MS Vs. Ph.D and other factors
- Keep course load manageable
- Keep right mix of courses
- CE graduate courses will not teach you how to program – you are expected to know before.
- Talk to advisor (if applicable), graduate office, multiple professors, course instructors
  - Be proactive and approach faculty
  - Faculty will be busy and may not immediately respond
    - But everyone means well and want students to succeed.
    - Don’t give up if important!