

## UVA ChE Graduate Student Career Planner

### Timeline for Prospective Future (Tenure Track) Faculty

**Introduction.** Career planning is an ongoing process and not an event. You, as a graduate student, have the responsibility to take the initiative to start this process during your tenure to assure success. One of the first steps is to reflect on your strengths, goals and passions. Then you can explore various career paths to find the best match for you.

The faculty employment environment is *extremely* competitive. You must have a history of distinguished accomplishment, but you must also demonstrate significant promise for future success in the areas of research, teaching/mentorship, and service.

In the present environment, your aim should be to establish a trajectory of scholarly work in graduate school that will enable you to secure (and be very productive in) a prominent post-doctoral research position and will put you in a position to seek a tenure-track faculty position.

You should aim to have:

- Outstanding **research performance** – both quality and quantity of publications, patents, and/or entrepreneurial activities
- Demonstrated the **ability to teach** – documented teaching evaluations are a plus
- Evidence of excellence in **leadership/mentorship**
- **Professional exposure** in your academic field – conferences/networking and publications
- Excellent **academic performance** – some schools may also request undergraduate transcripts
- Research **proposal writing experience** – fellowships, grant proposals, etc.

As a graduate student, you are building *your* brand in the academic world. Prospective employers will want to see a history of excellence in several areas, so it is important to start early and establish an aggressive trajectory of growth in the areas listed above.

A **generic** timeline is provided below to help guide along the way.

**The Early Years – Build a strong platform for success.** A strong record of achievement is a must, and it is critical to start from day one.

- Year 1 – Focus on excellence in graduate courses and prepare for excellence in research
  - Academic performance (GPA in both core and elective courses)
    - Consider taking elective courses that may help you develop unique research interests/ideas
  - Build foundational knowledge in your field – aggressively read the literature
    - Aim to understand the key challenges that exist in your field
    - Understand what has been done (and who is doing it) in your field so that you can focus on efforts that will make an impact
    - Regular discussions with your advisor, post-docs, and/or senior graduate students
  - Learn key techniques and/or procedures, and start to develop the ability to work independently in the laboratory
  - Apply for any fellowships or scholarships for which you are eligible
    - NSF GRFP, DOD NDSEG, private foundations, etc.
    - Internal UVA training grants
- Year 2 – Set the foundation for your research contributions
  - Identify the scope of your first manuscript – build a working outline to help guide lab work
    - Learn how to tell a story (in written and oral formats) well
      - Seek one-on-one help from those folks who really understand technical writing and grammar
        - Use the UVA SEAS Graduate Writing Lab as necessary
      - Commit to this goal realizing it may be a long process that may take considerable effort (depending on your starting point)
      - Practice presenting your work by participating in local and state conferences/organizations
      - Draft research figures and schematics that visually convey your points
        - Iterate and improve upon them regularly
  - Actively work on developing ideas for your research project
    - You should be pushing your advisor by proposing research ideas, finding new and interesting papers, etc.

- Apply for any fellowships or scholarships for which you are eligible
- Maintain your professional network from your past (send at least an annual email with updates to past advisors, recommendation letter writers, etc.)
- Begin developing a broader professional network as a graduate student by attending local and state meetings
- Years 2-3
  - Write and present your dissertation proposal
    - Pick your committee to contain faculty who can best help you (either as a result of their technical background, network, experience, etc.)
    - Keep in touch with your committee moving forward – share papers/successes, ask questions, etc.
  - Serve as a teaching assistant
    - Seek opportunities to take an active/leadership role in teaching (in conjunction with the primary instructor)
      - One-on-one office hours instruction – document particularly effective practices / examples of interactions
      - Writing homework/exam questions
      - Conducting review sessions
      - Teach a class or two
        - Plan the lesson, prepare notes, and rehearse if necessary
        - This exercise is even more beneficial if set up in a manner where the primary instructor is present to watch and provide feedback
      - Get feedback from the students – ask the primary instructor to distribute an anonymous teaching survey on your behalf
  - Draft and submit your first manuscript(s)
  - Take an active role in the research group
    - Mentor more junior students
    - Establish (with guidance from your advisor) a defined research project for an undergraduate student, and mentor a student through the process
  - If possible, submit an abstract and present at a technical conference
    - Having solid results is a must
    - Seek out travel awards/grants to increase your chances
  - Update your CV, and review it with the SEAS Graduate Student Office
    - Include all presentations, papers, activities, awards, etc.

- Years 3-PhD Defense
  - Publish as many first author papers as you can – quality and quantity matter
    - Write them yourself – do not rely on your advisor to catch your mistakes, in science, figures, statistics, grammar, or otherwise
    - Use the UVA SEAS Graduate Writing Lab as necessary
  - Contribute to as many collaborative efforts as you can to get as many co-authored papers as you can
  - Where possible, get involved in the grant writing process (typically under the guidance of your advisor)
  - Continue to pursue whatever awards, travel grants, etc. are available
    - Consider writing an NIH or AHA pre-doctoral fellowship
  - As you attend conferences / build a reputation in your field
    - Build your network – you never know when someone might be in a position to help you
    - Ask questions after other presentations at conferences
    - Introduce yourself to people whose work you've read
      - Follow up with a nice email after the conference
    - You will need very strong letters of recommendation (probably around 4, but possibly more depending on your situation) when you apply for faculty jobs
      - Letters from tenure-track faculty – industrial (even national lab) supervisors won't carry as much weight
      - Build these relationships early and maintain them over the years
      - Make sure your letter writers are well versed in your *specific* accomplishments and impact
    - Identify potential post-doc position advisors – make sure they know you, your work, and that you will be looking for a post-doc position in X years
  - Serve as a teaching assistant (again) or consider serving as a teaching intern
    - Ideally a different class
    - Build upon skills from your first appointment
  - Update your CV, and review it with the SEAS Graduate Student Office
  - Apply for post-doctoral fellowships – somewhat field specific
  - Apply for post-doctoral positions
    - Different from applying to college and/or graduate school
      - Often no formal application process

- Positions typically pop-up and are filled quickly – thus why it is important that you make your availability known (early) to advisors who you would like to work with
        - In some cases, positions are not formally posted, so directly contact potential postdoc advisors and include a 1 pager summarizing your PhD research experience and what you would want to do as a postdoc
          - Ideally you would already have a relationship with the potential postdoc advisors via networking activities
      - In some cases, graduate students can apply directly to faculty positions (without having already started a postdoc), but this practice is becoming more and more rare
        - If you go this route, you should already have letter writers lined up, and you should write a cover letter, research proposal, and teaching statement for your independent faculty position application
- General things to keep in mind
  - Throughout the whole process you will be building your own brand in terms of research, teaching, and service
    - Learn how to articulate what makes you unique from others
    - Seek out opportunities and develop skills that will distinguish you from the pack
    - Search committees will want to see how you will be different from your advisor(s) and what innovative things you could bring to their institution
    - Soft skills matter too
      - Technical depth matters, but can you answer questions in a way that would convince others that you would be a good teacher? Can you describe your research to a person who is not an expert in your field?
      - General social skills – faculty spend a lot of time talking to other people (colleagues, administrators, staff, students, etc.)
      - Dress for success at conferences, workshops, etc.
  - Talk to faculty who have recently been through the process and/or attend workshops for prospective faculty
    - AIChE often holds a prospective faculty workshop on Sunday morning of the National Meeting
    - There are many different approaches and ways to go about doing things – find the right fit for you