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Foundation data to discuss the job market for PhD holders. Often, this is the first time students learn that fewer than 20% of US PhD holders land tenure-track academic positions within 3–5 years of earning their PhD, and that 80% of all scientists work outside academia. Although this shocks most students, they are encouraged by the breadth and depth of job possibilities and the fact that the 2016 unemployment rate for PhD holders is 1.6%, compared with the US national average of about 4%.

In exercises, students explore careers that interest them, and learn about transferable skills and the expertise that they need for particular jobs. Students conduct informational interviews with PhD-holders in biotechnology, pharmaceutical and non-profit firms, and in government positions. They learn how to write effective cover letters and CVs, and go through a mock job-application process. We discuss the benefits and dangers of social media — particularly LinkedIn — in personal branding and discoverability.

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PhD-level guest lecturers who work in different sectors, including those who are entrepreneurs or work for local biotechnology companies and non-profits, discuss how they got their jobs, and provide advice on navigating the job market.

So far, 60 students have taken the course. Many have said that it has had a great impact. Students draw comfort from an environment that expands beyond the pro-academia attitudes of many faculty mentors and administrators. Some former students have won jobs directly out of graduate school using knowledge and skills that they gained in the course. Several got jobs as a result of their informational interviews.

The course is not perfect. It receives a more mixed response from faculty colleagues and university administrators. Some support whatever training helps students to prepare for a variety of career paths; others feel that the course distracts from the university’s research mission and the training of future scientists.

Colleagues say that they know nothing about non-academic careers and thus are unable to support students’ career interests outside academia. I disagree. Faculty members need to encourage and allow trainees to participate in career-development initiatives.

I’m hoping that we can begin to provide a safe environment for graduate students to develop the skills and knowledge needed to move into personally rewarding careers. We have a fundamental duty to do no less. ■

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## COLUMN

# Plot your course

A safe haven for career support unlocks a range of non-academic options, says **Nathan L. Vanderford**.

**T**hree years ago, I created and launched a career-development course at my institution that helps PhD students to prepare for a diverse job market. Why? I was frustrated by the lack of support and guidance in US PhD programmes for students who want a non-academic job.

The decision to do this grew largely from my own winding path, which often resonates with PhD students today who are struggling to find their way into the workforce. As a PhD student from 2003 to 2008, I came to decide against research and the tenure track. At the time, my mentor, my department and my university didn’t value non-academic careers, and there was a general belief that PhD programmes

should not ‘waste’ resources on students who did not want to become principal investigators.

It was almost impossible for me to prepare for a non-academic career in this environment. I couldn’t participate in career-support services — and didn’t know if they even existed. I was unaware that a strong cover letter and CV require nuanced language and presentation, and I was clueless about the role of networking in the job market. I filed one futile job application after another. After a one-year postdoc, I moved into academic administration, which led me, ironically, into a tenure-track position.

From there, I launched the course to try to help students to avoid those same struggles. In the first class meeting, I use US National Science