

Sample Faculty Development Plan – Chemistry

Self-Assessment

Scholarship: I have a passion for research and mentoring undergraduate, graduate and postdoctoral researchers. I believe this area is going very well despite the inevitable challenges involved in relocating a research program and starting up a new lab. My accomplishments from my first 11 months at BYU are summarized below:

External Funding:

- \$1,069,572 (This is the amount transferred to BYU from previous position; >1.7M Total) – NIH NCI R33 CA225248 Title: *In-Depth Proteome Mapping of the Tumor Microenvironment with Single-Cell Resolution*
- \$20,000 Activities related to PNNL joint appointment
- \$15,000 Georges Guiochon Faculty Fellowship – Research grant associated with an award from the HPLC conference
- \$486,063 Sponsored research agreement with Biogen, Inc. Title: *Leveraging nanoPOTS for Neuronal Proteomics in Human Motor Neuron Diseases*
- \$250,000 Sponsored research agreement with Bristol-Myers Squibb
- \$96,612 NIH NCI Subcontract with Fred Hutchinson Cancer Center (approved but not yet started) Title: *Integration and Validation of Emerging Technologies to Accelerate Cancer Research*
- **Total External Research Funding for First Year at BYU: \$1,937,247**

Publications: I have published or submitted a total of **20 manuscripts since 2018** including:

- 16 published, 4 in submission
- 2 editorials, 18 peer reviewed
- 10 as a BYU faculty member

Mentoring: I am mentoring 1 research scientist, 1 postdoc, 4 graduate students and 8 undergraduates including two interns. Another graduate student, postdoc and undergraduate are scheduled to start this summer, which will bring my group size to ~17 after the interns wrap up. This is a bit unwieldy at the moment since almost everyone is in the early stages of learning to do research, so I won't allow the group to grow further until we mature somewhat.

Teaching: So far I have only taught Chem 106 one time. My overall ratings were ~4.2, which is close to the departmental average. The feedback I received was right in line with my own assessment.

- Positive feedback
 - I care about the students
 - I am respectful and appropriate
 - Spiritual/inspirational thoughts were appreciated
 - They appreciated when I included anecdotes from my research
 - They appreciated my humor, which helped to keep them engaged
- Negative feedback

- There were quite a few comments about me not explaining concepts very clearly, not answering questions well, etc.
- Many of them **hated** that I used Adam Woolley's exams and many of his slides, and they felt they were at a disadvantage (although exam scores weren't too far off)
- Many comments indicated that I don't write legibly and they also weren't all fans of having the solutions worked out in PowerPoint

In general, I believe that while teaching for the first time was extremely challenging, it is also very enjoyable and rewarding. A lot of the negative feedback will be remedied the next time I teach as I will be using my own exams and I'll be able to explain the material better now that I understand it myself and am not just learning right along with the students. The hardest thing to remedy will be to write legibly, which has always been challenging for me. At any rate, I think I will be able to connect with the students and help them learn and teaching will go well.

However, the next course I teach, Chem 629R, will also be a new prep, and I expect some difficulties again as I will again be again learning the material along with the students.

Citizenship: At present my internal citizenship responsibilities are limited to the recruiting committee, which has involved recruiting trips to Weber, SUU and Dixie, helping with the site visit and helping with the REU/Talmage programs.

Externally, I have served as a guest editor for *Analytical and Bioanalytical Chemistry*, chaired 3 sessions at scientific conferences and reviewed many papers and proposals for various journals and funding agencies. I also serve as a panelist for the National Academies of Science National Research Council program and I am an editorial board member for *Scientific Reports*.

I feel that this level of citizenship is about right as I get the hang of teaching and get my research program up and running, and I will look forward to assuming additional responsibilities in the coming years.

Professional Goals

Scholarship: I aim to be an internationally recognized and highly productive bioanalytical chemist. Specific metrics I aim to achieve are as follows:

- \$1,000,000 in external research funding/year
- 10 peer-reviewed publications/year
- At least 5 invited talks at national or international conferences

Plan to accomplish these: My long-term funding goal is to be awarded an R35 (MIRA: Maximizing Investigators' Research Award) from NIGMS, which provides stable, flexible funding to pursue goals relevant to the mission of NIGMS. To accomplish this, I should first receive an NIGMS R01 and then transition to the MIRA near the end of that grant. I am pursuing the NIGMS R01 this year. More broadly, I will submit at least 1 or 2 R01-level grants each year. This helps me to come up with new ideas and stay connected with the field. My success rate is around 30% for these, so hopefully this is sufficient to remain funded. In addition, I am frequently requested to collaborate on grants as a co-PI or a key investigator and I will continue to avail myself of these opportunities. I also have close ties with the pharmaceutical and bioanalytical instrumentation industries and will continue availing myself of sponsored research with these industrial collaborators.

Critically, I must deliver results for the awards that I receive, which will in turn lead to new funding. I will continue mentoring and managing my group to achieve results, which will lead to new opportunities for the students and enable my group to remain funded.

Teaching: I greatly appreciate the emphasis that the University places on teaching, and I view the transfer of knowledge and understanding to the student as a sacred process. Teaching goals are less quantifiable than research other than through the metrics associated with student ratings. While these ratings are important, and while I aim to consistently improve those ratings and remain at or above the departmental average, I want those ratings to be a byproduct of my sincere efforts to connect with students and help them to learn the subject matter. During my limited experience with teaching, I found that it made me so happy to deliver a good, effective lecture that helped the students to learn, and to motivate the students to accomplish things that they found to be out of reach. In contrast, when the lectures did not go well and confusion prevailed, I wanted to crawl under a rock. I believe that with continued effort and experience, the good teaching experiences will be increased and the negative ones substantially minimized.

Plan to accomplish these:

- Engagement – I believe that a combination of humor, relatability and real-world applicability helps to bring the subject to life.
- Subject matter mastery – I need to have a deep and facile understanding of a concept to be able to explain it clearly and simply to someone else. This was the limiting factor during the first pass through 106 but it should go much better next time.
- Establishing clear expectations – Organization and clear communication regarding expectations should help students prioritize the information they receive and to take personal responsibility for their education.
- Accessibility – I will continue to make myself available for students who need additional help or who have other concerns.

Citizenship: I will continue to be measured in accepting new citizenship-related responsibilities to ensure that the associated time commitments do not derail my teaching, scholarship or family life. That said, when I do accept responsibilities, I will strive to deliver on them to the best of my ability.

Relationship to Department and University Aspirations and Needs

I believe that my teaching, research and citizenship aspirations are directly in line with that of BYU and the Department of Chemistry and Biochemistry. I am direct-mentoring a large number of students and I believe all or mostly all of them are having highly positive experiences in a healthy and vibrant environment. The experiential learning my students receive will certainly help them to further their career goals. I believe that my strong research program will be beneficial to the university and the department as we aim to elevate the research profile of BYU.

Resources Needed

I would like to discuss the possibility of pursuing CFS and full professor rank before the 6 years stated in my offer letter. It seems almost punitive to make me wait until I am almost 50 years old given my past experience and the level of performance I am achieving, particularly with respect to scholarship. I asked

about this during the Spring Conference, and Dr. Bridgewater made it sound like a virtual impossibility to shorten the CFS clock from what is stated in the offer letter. But she said if this was an issue or if it wasn't explained well during the hiring process that it should be revisited now rather than waiting until close to CFS review. Perhaps we can meet and discuss this.

Other than this, I am grateful for the lab space, startup funds and other resources provided by the university that are enabling me to be successful. I am also grateful for the formal and informal mentors in the department who are helping me to become a successful teacher.

Activities So Far in Achieving the Goals

As mentioned above, I have procured nearly \$2M of research funding and 10 publications in my first year at BYU. I have given 8 invited lectures at scientific conferences since joining BYU and am scheduled to give a number of additional invited lectures during the coming year. I am on track to have at least another 10 papers completed a year from now. I achieved the department average in my teaching ratings.