

Teaching Portfolio
Dr. Dawn Bowdish
Assistant Professor-Research Educator

i) Description of Responsibilities

Education (20%) responsibilities include contributing to undergraduate and graduate courses as negotiated with the Department Chair and Director of the Infectious Disease Institute and supervising undergraduate and graduate students.

Research (80%) responsibilities included the ongoing development of a research program dealing with the role of antigen presenting cells in host defense and the innate immune system, developing work on the role of macrophages and macrophage receptor expression during infection as well as any additional ongoing projects or those in development and developing collaborations within the Departments of Pathology and Molecular Medicine, Biochemistry and Biomedical Sciences and the Institute for Infectious Disease Research.

ii) Description of Teaching Approach/Philosophy

My philosophy is that as scientists we have a responsibility to foster the next generation of creative and bold scientific thinkers and to share our enthusiasm for our work, which we do by 1) formal teaching, using dynamic examples of the application of our work, 2) mentorship, providing our trainees ample opportunities to excel and 3) public engagement, sharing both our knowledge and the relevance of our work to the broad public.

I feel fortunate to teach immunology (HTH SCI 4I13) because students immediately recognize the basic importance of this field since all of us have had the common experience of getting sick and getting better. I have not yet met anyone, layperson or scientist, young or old, who isn't curious about why we get sick and how we get better. Immunology, like all aspects of biology, contains many difficult and counter-intuitive concepts but by capitalizing on the common experiences we have all had and working off the common framework of getting sick and getting better, it is easy to engage students.

Although my primary appointment is research, teaching and mentoring are essential components of my research portfolio. As such I supervise undergraduate thesis students, graduate students and post-doctoral fellows. I also mentor high school students, especially those from the Youth Engaged in Science program who are from Hamilton's "at-risk" high schools, and post-doctoral fellows who are choosing academia or other careers. Thus, in addition to teaching basic laboratory skills, critical thinking, creativity and ambition, I expect trainees to take ownership for their projects and to become independent and integrated members of our department and to think of themselves as scientists rather than students.

iii) Description of Teaching Practice

In Winter 2012 I co-taught the undergraduate course (HTH SCI 4I13) and together we radically restructured and developed new curriculum for the course in order to convey the information that immunology is an applied subject and that the concepts we teach are required to make informed choices and understand complex health care issues (e.g. "why is 'biological' therapy as a treatment for rheumatoid

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arthritis such a powerful but side-effect fraught treatment?, “what are the immunological principles behind the most promising new cancer therapeutics in phase I, II & III clinical trials?”, “should pregnant and breastfeeding women avoid or ingest peanuts to protect their babies from peanut allergy?”). In addition we created a Google+ page where students could bring up issues, news articles and concepts for class and engage in conversations, not just with professors & TA’s but also with a larger community of followers (primarily other science educators and the lay public). Student feedback was extremely positive to these changes and in Winter 2013 I will be co-ordinating the course and continuing to expand these novel teaching initiatives. In addition, I have recently become involved in teaching

Because I enjoy one-on-one teaching opportunities I teach the Medical Sciences graduate course MS799-Independent study. I particularly enjoy teaching this course because of its open-ended nature. In Spring 2010 I taught a student who needed particular assistance with oral presentations so we designed the marking scheme to include an oral presentation and spent some of the class discussing the elements of a good presentation, how to present complex background material to a diverse audience, etc. In Fall 2012 (I did not teach in 2011 due to my maternity leave) I taught a student who was not confident in her writing skills. We decided to tailor the course to include writing an review article and spent some of the class time discussing writing a coverletter, designing a review article, investigating appropriate journals etc and working on drafts of an article, which I believe is now of sufficient quality to be submitted for publication in a good journal (Journal of Leukocyte Biology). Although the number of students one can teach in this sort of class is low, I believe that the impact one can make on their education is high.

To fulfill my mandate of education through mentorship, I encourage students to take or create opportunities to present their work, be it through local or regional research forums, oral or poster

presentations or by writing their own “press-releases” of their work to post on our lab website or our Centre’s social media sites. I measure my success as a mentor by their success in receiving invitations to present their work, awards and scholarships and their ability to obtain positions in their chosen fields after leaving my lab. For a description of the distinctions obtained by my lab members see <http://www.bowdish.ca/lab/people/>.

My involvement in mentorship and public engagement are closely linked. I encourage my trainees to become “science-citizens”, who acknowledge their duties and responsibilities to the Canadian public who fund our work. In this regard, my trainees are actively involved in dissemination of their own research and are required to write summaries of their discoveries for the lay public. In addition they develop their own mentorship abilities by working closely with our high school summer interns and I have encouraged them to develop their own initiatives to “give-back” to the community. Currently they are working on a plan to create a high school or university summer internship for an Aboriginal student. They have created the highly successful “Human Microbiome Journal Club” blog (<http://hmjournalclub.wordpress.com/>), which was recently recommended by Jonathan Eisen as one of the “top microbiology blogs on the web” and was featured in Nature News http://www.nature.com/nrmicro/info/info_social_media.html, and they have applied for funding to

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create initiatives to engage the community and charities which fund their work. In addition to supporting my trainees' initiatives in community involvement, I have done interviews and written articles for the lay public and am participating in public outreach such as Café Scientifique (April 2013) designed to have a constructive dialogue with the community on controversies in vaccination. I also manage the McMaster Immunology Research Centre website and our social media presence on Facebook and Google+ page, which together have over 1000 followers, primarily from the lay public.

iv) Description of Contributions to Teaching

Undergraduate thesis students

I have been a supervisor for 9 thesis courses of 3rd and 4th year students from Biochemistry, Health Sciences, Biology and Science.

Undergraduate courses

HTH SCI 4I13 – Winter 2012 (instructor), Winter 2013 (co-ordinator)

iSCI 2A18: History of the Earth module – lecturer

Graduate courses

MS715 – Fall 2010, 2011, 2012 (lecturer, 1 lecture per term)

MS799 – Spring 2010, Fall 2012 (instructor)

Graduate supervision

I currently supervise 3 graduate students and have graduated two MSc students. I currently sit on 4 supervisory committees and have 6 completed. I have been an examiner of nine graduate student comprehensive exams, PhD transfers or MSC defences.

Post-graduate supervision

I currently supervise two post-doctoral fellows (one with Dr. Mike Surette) and one of my former post-doctoral fellows is currently a faculty member at the University of Manitoba.

v) Details of responses to the summative question in student's ratings.