Background
In response to the lack of research data management instruction at University of Toronto (UofT), members of the Research Data Management Working Group at University of Toronto Libraries (UTL) embarked on developing a curriculum in RDM that would focus on graduate students, a group pivotal to have a broad impact on RDM practices throughout the university.

Before developing the curriculum, we held an open mic event marketed to graduate students, “Speed Dating: An Open Mic Event Without the Romance.” Participants were invited to share their research data stories to facilitate discussions among peers and enable librarians to discover discipline-specific research needs, issues, and workflows, which in turn allowed us to target areas for instruction.

A Co-curricular approach
Because graduate students were our primary audience, we built upon previous institutional collaborations between the UTL and the School of Graduate Studies (SGS) in the Graduate Professional Skills (GPS) program, through which graduate students can attain a micro-sentence for completion of 20 GPS workshop units. Workshops are offered in a diverse array designed to prepare graduate students for success in their studies and professional careers. Other campus partners delivering workshops include the Academic Success Centre, the Centre for Community Partnerships, the Office of Research Ethics, and the Career Centre.

Sources of Content
To prepare our curriculum, we conducted an environmental scan of RDM courses and workshops available at universities in the United States and Canada.

We wanted to find:
• What are the offerings workshops for their graduate students?
• What kind of teaching models were they using?
• What content were they including and emphasizing?

Modifying NECDMC for use at UofT
Excited about NECDMC, we decided to modify the curriculum to fit the GPS format. Our overall approach:
• Three hours in length maximum
• Discipline and domain agnostic
• Workshop for 30 participants and three presenters
• Include references and examples

Distilling the main themes of each of the seven NECDMC modules and compressing them into three to three-hour workshop units was our biggest challenge. Over several meetings and many iterations we developed a curriculum that prioritized aspects of research data management and took into account our diverse graduate student population and their strong subject expertise in their respective fields.

Format
We aligned our curriculum with GPS: each workshop had a specific key and corresponding activities covered a key aspect of RDM and at the conclusion of the workshop, participants would complete their own simplified DDS. See the chart (right) for an outline of the course.

We chose to format the course in this manner to ensure that students left the three-hour workshop with a concrete starting point for practicing RDM. Additionally, we created a LibGuide in support of the workshop that included summary descriptions of best practices, copies of the slides used in the class, and links to resources on campus and beyond.

In coding responses to questions #2 and #3, we found responses overlapped considerably, and thereby merged the results of these questions. By far the most common response to these questions were that students covered more practical, concrete examples of how to manage data (14). The next most common concern was a desire for more discussion tools and software to support RDM (8). The third and fourth most common responses were that students wished for a more nuanced and discipline-specific approach to the material, and that the students wanted more detail as the subject of metadata (7). Other themes included a clearer and more detailed explanation of DDNI, their courses, and their function (5), and making the course longer or splitting it into multiple workshops (2).

Testing and Delivery
First test run: delivered to a small group of data management librarian specialists. Having extensively modified the NECDMC, we wanted to first present the course to subject specialists due to its technical depth for brevity.

Second and third test run: delivered to librarians throughout the UTL system. Our two general test runs yielded a wide range of feedback on pacing, organization, and areas for course improvement and continue to add valuable input from mentors to libraries in many fields in RDM, laying the groundwork for further training.

Delivery to graduate students: On March 5, 2015 and April 15, 2015, we delivered the curriculum as part of the GPS workshop series, with 25 and 19 student attending, respectively.

Demographics and Expectations
“Intro to Research Data Management” was marketed through the GPS and social media newsletter and including the registration link in the list of current GPS offerings.

After registering for the workshop through the GPS website, students were sent a pre-course survey to the GPS. After Monday morning, they were asked about how they prepared for the workshop, their department affiliation and what they hoped to get out of the course. Students who did not fill out the online survey were encouraged to fill out a paper copy of the survey prior to the class beginning.

Of the 42 students who filled in pre-course surveys, 21 said that they wished to learn how to manage data. More specific topics students hoped to learn about including organization (9), software and tools for managing data (7), data reuse (7), making data accessible and discoverable (5), and how to manage large quantities of data (5). Several students had more specific interests, including encryption (5), research ethics (5), and data citation (4).

Interpretation and Future Plans
Based on the feedback we received, it was clear that students wanted concrete and practical advice, whether that came in the form of explicit examples or specific tools to perform particular tasks. Emphasis on these facets of RDM would likely increase student satisfaction and enhance curriculum development.

We were surprised that students engaged with metadata as much as they did, and acknowledge that specific RDM tools, such as metadata or data citation, are not always a focus for scholarly communication.

The format of the course hit the mark: students enjoyed the immersiveness, organization, and scope of the course. Students appeared to like the general, introductory nature of the course and many described learning about topics that were entirely new to them, including data sharing, data papers, and repositories for finding data.

Duration
Greg Webster, Assistant Professor, University of Toronto Libraries
Co-curricular RDM: a Pilot Service for Graduate Students at the University of Toronto
Leslie Barnes, Digital Scholarship Librarian, Dylanne Dearborn, Research Data Librarian, Andrew Nicholson, GIS/Data Librarian
University of Toronto Libraries