COURSE DESCRIPTION
Data is essential to the research process, and is an essential product of research. As the volume, variety, and velocity of research data continues to expand, researchers and funding agencies are recognizing the value of proactive research data management (RDM), and are turning to information professionals to help. This course covers RDM policy, plans, and practice through both theory and practical application. Students will gain and put into practice knowledge on how to assess requirements; produce practical plans; manage data throughout its lifecycle; curate, preserve, and rescue data; and work with international research data standards, across a variety of disciplines.

ACKNOWLEDGEMENT
We are indebted to Tess Grynoch (MLIS 2016); her information collection during our RDM reading course contributed substantially to the development of this course.

COURSE PRE-REQUISITES
Students will benefit from previously completing INFO 6540 and a research methods course (like INFO 5590), but neither is required.

COURSE OBJECTIVES
The goal of this course is to prepare students to manage research data in multiple contexts for multiple disciplines. This includes understanding of data and its role in the
research process, creating and critiquing data management plans, using tools and policy to effectively manage data and metadata through the research project lifecycle, and communicating effectively to understand stakeholder needs and manage the change that research data management represents to researchers, institutions, and information professionals.

LEARNING OUTCOMES

1. Understand and describe a variety of motivations for managing research data, and effectively communicate these motivations to manage change
2. Identify the current state and prospective trends in research data management (RDM)
3. Elicit RDM requirements from stakeholders, and communicate mechanisms for meeting those requirements
4. Assess and evaluate RDM tools
5. Author, evaluate, communicate, and critically assess data management plans (DMPs)
6. Identify similarities and differences in RDM across multiple disciplines
7. Demonstrate understanding of the concerns around sharing data / open research data, including legal/research ethics concerns, and around closed data.
8. Identify the elements of a successful RDM service, including human, software, and hardware infrastructure
9. Identify principles of curation and preservation of data
10. Identify and apply metadata and documentation standards
11. Possess technical skills and experience managing and preserving research data
12. Ability to assess data collections and services.
13. Identify data management challenges and opportunities in a variety of contexts
14. Understand the research data lifecycle, and identify strategies to effectively manage data throughout its lifecycle

TECHNOLOGY USED
A variety of data tools.

INSTRUCTIONAL METHODS
Lecture, readings, class discussion, experiential learning.

LEARNING MATERIALS
We are currently evaluating textbooks. The two finalists are:


Neither book is entirely comprehensive, so supplemental readings will be drawn from academic literature (see attached annotated bibliography), the “runner-up” textbook, and additionally from:

- The newly released “*Curating Research Data, Volumes 1 and 2*” from ALA, open access.

**METHODS OF EVALUATION**

Detailed instructions regarding each assignment will be provided. Assessment of all assignments is directly related to attention to the instructions, clarity of expression and presentation, and evidence of significant analysis and reflection. See also the SIM Grading Policy.

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<tr>
<th>COMPONENT</th>
<th>OVERVIEW</th>
<th>VALUE</th>
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<tbody>
<tr>
<td><strong>Assignment #1:</strong> A wee bit buggy but it could be worse, let’s have fun with Dataverse! Sep 20</td>
<td>Each student will interact with an installation of Dataverse, a popular open-source data repository software package. You’ll see how the ideals discussed in class play out in practice, and gain experience configuring your own data repository.</td>
<td>15%</td>
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<tr>
<td><strong>Assignment #2:</strong> The good, the bad, and the ugly Oct 11</td>
<td>Review several data management plans (DMP) along with an overview of the research the scholars plan to undertake. Assess the DMP using the criteria discussed in class, and provide the researchers with a) suggested changes and b) the reasons why it will benefit them to make this change; provide us with an overall grade for the DMP.</td>
<td>15%</td>
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<td><strong>Assignment #3:</strong> What’s that, Lassie? Data’s trapped in the well? Nov 20</td>
<td>We’ve identified Dalhousie researchers who have collected data at great time and expense, but who have not taken steps to preserve, manage, or share it. This data is at risk of being lost; your task is to rescue this data. Assess the data, identify and</td>
<td>25%</td>
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**Completed in pairs.** Populate appropriate metadata and documentation fields, and deposit the data in an appropriate repository for the benefit of future researchers.

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<tr>
<th><strong>Project:</strong> Data Management Plan</th>
<th>Meet with a Dalhousie researcher and assess their requirements using RDM interview questions. Draft a DMP that will meet their requirements, and the requirements of their discipline, funding agency/ies, and department, using the Portage DMP tool. This project is due, and will be assessed, in multiple stages. Students will be asked to reflect on their project in class, connecting the experience to the readings / lecture / discussion topic.</th>
<th>Oct 25: 10% Nov 10: 10% Nov 30: 15%</th>
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**Participation** See rubric below. 10%

**Participation Evaluation Rubric**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Indicators</th>
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<tr>
<td>Preparation (Weighting: 30%)</td>
<td>The student demonstrates consistent preparation for class; readings are always completed and the student is able to relate readings to each other and to other course material (discussions, presentations, guest speakers, etc.)</td>
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<tr>
<td>Quality of contributions (Weighting: 30%)</td>
<td>The student’s comments are relevant and reflect understanding of readings and other course material. The student’s contributions move the discussion forward.</td>
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<tr>
<td>Frequency of participation (Weighting: 20%)</td>
<td>The student is actively engaged in the class and/or discussions at all times.</td>
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<tr>
<td>Attendance/Punctuality (Weighting: 20%)</td>
<td>The student is always punctual and no unexcused absences. It should be noted that without attending, the previous categories cannot be assessed and may also be impacted.</td>
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**Integration of MLIS Competencies**

<table>
<thead>
<tr>
<th>PROGRAM COMPETENCY</th>
<th>COURSE LEARNING OUTCOME</th>
<th>COURSE ASSESSMENT</th>
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<tbody>
<tr>
<td>1. Management of Information Technology</td>
<td>1, 2, 4, 8, 9, 10, 11</td>
<td>A1, A3, P</td>
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<tr>
<td>2. Information Management Leadership</td>
<td>1, 2, 3, 7, 8, 13</td>
<td>A3, P</td>
</tr>
<tr>
<td>3. Risk and Change Management</td>
<td>1, 3, 7, 13</td>
<td>A2, A3, P</td>
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</tbody>
</table>
4. User-centred Information Services  
1, 3, 4, 7  
A1, A3, P

5. Research and Evaluation  
1, 4, 5, 6, 12, 14  
A3, P

6a. Workplace Skills & Attributes: Collaborate and communicate  
1, 3, 5, 8  
A2, A3, P

6b. Workplace Skills & Attributes: Organize, Plan & Manage  
1, 2, 3, 5, 8, 12, 13, 14  
A1, A3, P

6c. Workplace Skills & Attributes: Develop Personally & Professionally  
1, 5, 7, 14  
A2, A3, P

CLASS POLICIES

Attendance  
Class attendance is required in all MLIS courses and is included in the participation mark.

Absence  
Students are required to inform both instructors ahead of time of any absence from class, or explain why this was impossible. The University Policy on "Missed or Late Academic Requirements due to Illness, Distress or other Extenuating Circumstances" applies, with the following specific implementation notes:

• Student Declaration of Absence forms must be uploaded to the designated Dropbox in Brightspace.
• Emails advising us of absence should be sent to both instructors.
• In the event of short-term absences as described in the Policy impacting the timely submission of assignments, the Student Declaration of Absence form must be accompanied by evidence of the current progress toward completing the assignment, and an extension may be provided based in part on that progress.
• Course participation marks will not be affected by a single missed class. Students missing more than one class should contact the instructors to identify how to make up for the lost opportunity to participate in class.

For longer absences, please review the Policy and make an appointment to meet with the instructors.

Late penalties for assignments  
A penalty for late assignments will be assessed, unless prior permission has been given by the instructor to submit an assignment late, which normally will be for extended illness, medical, or family emergencies only (see above). Late submissions will be
assessed a penalty of five percent of their total weighting per calendar day. Assignments will not normally be accepted seven days or more after the due date; in such cases the student will receive a grade of zero.

**ACCOMMODATION POLICY FOR STUDENTS**

Students may request accommodation as a result of barriers experienced related to disability, religious obligation, or any characteristic protected under Canadian human rights legislation.

Students who require academic accommodation for either classroom participation or the writing of tests and exams should make their request to the Advising and Access Services Center (AASC) prior to or at the outset of the regular academic year. Please visit www.dal.ca/access for more information and to obtain the Request for Accommodation form.

A note taker may be required as part of a student’s accommodation. There is an honorarium of $75/course/term (with some exceptions). If you are interested, please contact AASC at 494-2836 for more information or send an email to notetaking@dal.ca.

Please note that your classroom may contain specialized accessible furniture and equipment. It is important that these items remain in the classroom, untouched, so that students who require their usage will be able to fully participate in the class.

**ACADEMIC INTEGRITY**

In general:

The commitment of the Faculty of Management is to graduate future leaders of business, government and civil society who manage with integrity and get things done. This is non-negotiable in our community and it starts with your first class at Dalhousie University. So when you submit any work for evaluation in this course or any other, please ensure that you are familiar with your obligations under the Faculty of Management’s Academic Integrity Policies and that you understand where to go for help and advice in living up to our standards. You should be familiar with the Faculty of Management Professor and Student Contract on Academic Integrity, and it is your responsibility to ask questions if there is anything you do not understand.

Dalhousie offers many ways to learn about academic writing and presentations so that all members of the University community may acknowledge the intellectual property of others. Knowing how to find, evaluate, select, synthesize and cite information for use in assignments is called being "information literate." Information literacy is taught by
Dalhousie University Librarians in classes and through Dalhousie Libraries’ online Citing & Writing tutorials.

Do not plagiarize any materials for this course. For further guidance on what constitutes plagiarism, how to avoid it, and proper methods for attributing sources, please consult the University Secretariat’s Academic Integrity page.

Please note that Dalhousie subscribes to plagiarism detection software that checks for originality in submitted papers. Any paper submitted by a student at Dalhousie University may be checked for originality to confirm that the student has not plagiarized from other sources. Plagiarism is considered a very serious academic offence that may lead to loss of credit, suspension or expulsion from the University, or even the revocation of a degree. It is essential that there be correct attribution of authorities from which facts and opinions have been derived. At Dalhousie, there are University Regulations which deal with plagiarism and, prior to submitting any paper in a course; students should read the Policy on Intellectual Honesty contained in the Calendar.

Furthermore, the University’s Senate has affirmed the right of any instructor to require that student assignments be submitted in both written and computer readable format, e.g.: a text file or as an email attachment, and to submit any paper to a check such as that performed by the plagiarism detection software. As a student in this class, you are to keep an electronic copy of any paper you submit, and the course instructor may require you to submit that electronic copy on demand. Use of third-party originality checking software does not preclude instructor use of alternate means to identify lapses in originality and attribution. The result of such assessment may be used as evidence in any disciplinary action taken by the Senate.

Finally:
If you suspect cheating by colleagues or lapses in standards by a professor, you may use the confidential email: ManagementIntegrity@dal.ca which is read only by the Assistant Academic Integrity Officer.
Faculty of Management clarification on plagiarism versus collaboration:

There are many forms of plagiarism, for instance, copying on exams and assignments. There is a clear line between group work on assignments when explicitly authorised by the professor and copying solutions from others. It is permissible to work on assignments with your friends but only when the professor gives you permission in the specific context of the assignment. University rules clearly stipulate that all assignments should be undertaken individually unless specifically authorised.

Specific examples of plagiarism include, but are not limited to, the following:
- Copying a computer file from another student, and using it as a template for your own solution
- Copying text written by another student
- Submitting the work of someone else, including that of a tutor as your own

An example of acceptable collaboration includes the following:
- When authorised by the professor, discussing the issues and underlying factors of a case with fellow students, and then each of the students writing up their submissions individually, from start to finish.

COURSE SCHEDULE

<table>
<thead>
<tr>
<th>Date of Class</th>
<th>Topics &amp; Assignments</th>
<th>Required Readings</th>
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<tbody>
<tr>
<td>Sep 6</td>
<td>A short review (defining data, types of data, and data formats) and why data needs to be managed and shared: internal and external forces.</td>
<td>See annotated bibliography for weekly readings. Textbook readings will depend on the final textbook selection.</td>
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<tr>
<td>Sep 13</td>
<td>Data lifecycle and models, data sharing and discovery, assessing data repositories, software and technology, and data citation</td>
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<tr>
<td>Sep 20</td>
<td>Data management plans: Their content, tools to help build them, and the data interview Assignment 1 Due</td>
<td>Tentative guest: Director, Portage (Remote)</td>
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<tr>
<td>Date</td>
<td>Topic</td>
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<td>Sep 27</td>
<td>The research practices and data management needs of science and health researchers</td>
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<tr>
<td>Oct 4</td>
<td>The research practices and data management needs of social science and humanities researchers</td>
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| Oct 11   | Metadata for data: Metadata crosswalks and how to explain metadata to non-librarians  
Assignment 2 Due |
| Oct 18   | Software and hardware for data manipulation, rescue, and preservation  
Tentative guest: Lee Wilson, Portage |
| Oct 25   | Data sharing and reuse: Practice vs. Policy  
Project First Submission Due |
| Nov 1    | Legal implications to data sharing: Addressing sensitive data and intellectual property concerns |
| Nov 8    | Assessing data: Collection development. Digital preservation  
Project 2nd Submission Due Nov 10  
Tentative guest: Creighton Barrett |
| Nov 15   | Reading Week |
| Nov 22   | The price of repositories and data services: Sustainable economic models  
Assignment 3 Due Nov 20 |
| Nov 29   | Trends in data management: Semantic web, linked data, other emerging data trends, and job prospects in this field  
Project Final Submission Due Nov 30 |