We acknowledge that we are on the traditional, ancestral and unceded territory of the hən̓q̓əmin̓əm̓ speaking Musqueam people.

iSchool Mission: Through innovative research, education and design, our mission is to enhance humanity's capacity to engage information in effective, creative and diverse ways.

LIBR 532: Science and Technology Information Sources and Services – Course Syllabus (3)

Program: Master of Library and Information Studies

Year: Winter session 2019-2020, term 2

Course Schedule: Thursday, 8:00-10:50 am

Location: Irving K. Barber Learning Centre, Room 158

Instructors:

Sarah Parker
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Learning Management Site: http://lthub.ubc.ca/guides/canvas/

Course Goal: The goal of this course is for students to acquire the skills and knowledge necessary for a librarian in a scientific setting.

FNCC Specialization: The assignments in this course can serve the requirements of the First Nations Curriculum Concentration (FNCC). If students would like to take this course for FNCC credit, they are invited to contact the instructors to discuss this option.

Course Objectives:

Upon completion of this course students will be able to:
1. Describe the scientific method. [1.4]
2. Differentiate between scientific communities (e.g. physical sciences, natural sciences, engineering and technology) with respect to information needs, user behaviours and communication practices. [1.1]

3. Differentiate between types of science libraries, and the services and issues relevant to each. [1.1, 1.3, 1.4]
4. Characterize the scientific literature and utilize resources for collection development and evaluation. [1.2, 3.2,]
5. Select and search the most appropriate resources to respond to research and instructional needs. [1.1, 1.3, 2.2]
6. Identify and provide a critical analysis of the key issues facing science libraries today. [1.2, 1.4, 4.1]

Course Topics:

- A brief history of science, science libraries and librarianship.
- A practical overview of the major resources in the physical sciences, natural sciences, engineering and technology, including standards and patents.
- A practical approach for reference questions in these subject areas.
- Services and issues specific to different libraries (e.g. government, public, academic, industry libraries).
- Current trends in science and technology librarianship namely science communication, open scholarship, research data management, scholarly communication and publishing.

Prerequisites:

MLIS and Dual MAS/MLIS: Completion of MLIS Core or permission of iSchool Graduate Advisor
MAS: completion of MAS core and permission of the iSchool Graduate Advisor

Format of the course: Class sessions will be a combination of lectures, guest speakers, discussions and in-class activities.

Required and Recommended Reading: Please see Course Schedule below for readings.

Course Assignments:

Assignment Name	**Due Date**	**Weight**	**Graduate competencies**
Science metrics: Finding the h-index for a researcher [individual]	February 13	20%	1.3, 2.1
In conversation with a scientist or engineer [individual]	February 27	30%	1.1, 1.4, 2.1, 5.1

Key issues presentation [group]	March 26 and April 2	40%	1.4, 2.1, 3.1, 4.1, 5.3
Participation in class [includes: class attendance, leading one small group discussion about a journal article and submitting questions; sharing what you learned about a science library; presenting highlights of assignment 2 in class; and 3-min show & tell of popular science resource]		10%	2.1, 3.1, 4.1, 5.3

Course Schedule, including Readings:

	Topics	**In class activities / Assignments**	**Readings (REQ = required ; REC = recommended)**
Week 1 Jan. 9	Welcome & introductions. Review syllabus, assignments, timelines and expectations.	Sign up to lead one of five journal article discussions. Sign up for a science library.	
	What is science? Scientific method. Scientific communication and publication types.	Scientific experiment.	

Week 2 Jan. 16	Scientific disciplines and user behaviours.	Journal article discussion.	Allard, S., Levine, K.J., & Tenopir, C. (2009). Design engineers and technical professionals at work: Observing information usage in the workplace. *Journal of the American Society for Information Science and Technology, 60*(3), 443-454. doi:10.1002/asi.21004 **REQ** Rose-Wiles L., & Marzabadi, C. (2018). What do chemists cite? A 5-year analysis of references cited in American Chemical Society journal articles. *Science & Technology Libraries*, 37(3), 246-273. doi:10.1080/0194262X.2018.1481488 **REC**
	History & types of science libraries. Future of science libraries – what are the key issues and/or visions? Guest speaker: Aleteia Greenwood, Interim Associate University Librarian, UBC	Share what you learned about a science library. Brainstorm questions for guest speakers.	
Week 3 Jan. 23	General science resources, e.g. Web of Science Core Collection, Google Scholar. Measuring scientific productivity: h-index, impact factor, altmetrics.	Use Web of Science, Google commands, Journal Citation Reports. Introduction to ASSIGNMENT 1. Group sign up for ASSIGNMENT 3.	Hirsch, J.E. (2005). An index to quantify an individual's scientific research output. *PNAS, 102,* 16569-16572. doi:10.1073/pnas.0507655102 **REQ** Garfield, E. (2006). The history and meaning of the journal impact factor. *JAMA: The Journal of the American Medical Association, 295*, 90-

			93. doi:10.1001/jama.295.1.90 **REQ** Piwowar, H. (2013). Altmetrics: Value all research products. *Nature, 493*(7431), 159. doi:10.1038/493159a **REC** Wynes, S., Donner, S.D., Tannason, S., & Nabors, N. 2019. Academic air travel has a limited influence on professional success. *Journal of Cleaner Production, 226,* 959-967. doi:10.1016/j.jclepro.2019.04.109 **REC**
	Academic libraries Guest speaker: Jenna Thomson, Acting Head, Learning & Instructional Services Division, Simon Fraser University		ACRL Research Planning and Review Committee. (2018). 2018 top trends in academic libraries. Retrieved from https://crln.acrl.org/index.php/crlnews/article/view/17001/18750 **REC** Barsky, E., Greenwood, A., Sinanan, S., Tripp, L., & Willson, L. (2010). Five voices, two perspectives: Integrating student librarians into a science and engineering library. *Issues in Science and Technology Librarianship, 61*. doi: 10.5062/F4HQ3WTN **REC**
Week 4 Jan. 30	Collection management in science libraries: focus on serials and databases. Themes: the big deal, the big publishers, increasing costs, transition to online, storage of print collections.	Journal article discussion. Collections scenario. Introduction to ASSIGNMENT 2	Lariviere, V., Haustein, S., & Mongeon, P. (2015). The oligopoly for academic publishers in the digital era. *PLOS One, 10*, e0127502. doi: 10.1371/journal.pone.0127502 **REQ** University of California Office of Scholarly Communication.

	Guest speaker: Sheldon Armstrong, Associate University Librarian, Collections, UBC		(2019). UC and Elsevier: overview. Retrieved from https://osc.universityofcalifornia.edu/open-access-at-uc/publisher-negotiations/uc-and-elsevier/ **REC**
Week 5 Feb. 6	Open Scholarship in Science Themes: Tri-Agency Open Access policy. How does OA differ between scientific disciplines? Does OA influence citation rates? Predatory journals. Guest speaker: Stephanie Savage, Scholarly Communications and Copyright Services Librarian, UBC	Journal article discussion. Examine the Open Science Framework.	Munafo, M., Nosek, B., Bishop, D., Button, K., Chambers, C., du Sert, N.,...Ionnidis, J. (2017). A manifesto for reproducible science. *Nature Human Behaviour, 1*(1) doi: 10.1038/s41562-016-0021 **REQ** Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, and Social Sciences and Humanities Research Council of Canada. (2015). Tri-Agency Open Access Policy on Publications. Retrieved from http://www.science.gc.ca/default.asp?lang=En&n=F6765465-1 **REQ**
Week 6 Feb. 13	Government libraries. Guest speaker: Warren Wulff, Library Manager, Natural Resources Canada	ASSIGNMENT 1 DUE.	
	Physical sciences resources (chemistry, physics, math, geology, oceanography)	Use SciFinder, GeoRef, MathSciNet.	
READING WEEK (no class Feb. 20)			Check out the Woodward Great Reads shelf. https://greatreads.library.ubc.ca/

Week 7 Feb. 27	Research data management	ASSIGNMENT 2 DUE. Share highlights in class. Journal article discussion.	Series of three articles **REQ**: Mills, J.A., Teplitsky, C., Arroyo, B., Charmantier, A., Becker, P.H., Birkhead, T.R., … Zedrosser, A. (2015). Archiving primary data: solutions for long-term studies. *Trends in Ecology & Evolution, 30,* 581-589. doi:10.1016/j.tree.2015.07.006 Whitlock, M.C., Bronstein, J.L., Bruna, E.M., Ellison, A.M., Fox, C.W., McPeek, M.A., … Shaw, R.G. (2016). A balanced data archiving policy for long-term studies. *Trends in Ecology & Evolution, 31*, 84-85. doi:10.1016/j.tree.2015.12.001 Mills, J.A., Teplitsky, C., Arroyo, B., Charmantier, A., Becker, P.H., Birkhead, T.R., … Zedrosser, A. (2016). Solutions for archiving data in long-term studies: a reply to Whitlock et al. *Trends in Ecology & Evolution, 31*, 85-87. doi:10.1016/j.tree.2015.12.004 Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, and Social Sciences and Humanities Research Council of Canada. (2018). DRAFT Tri-Agency Research Data Management Policy For Consultation. Retrieved from https://www.science.gc.ca/eic/site/063.nsf/eng/h_97610.html **REQ**
Week 8 March 5	Engineering resources. Patents and standards.	Use Compendex, IEEE; Patents -	Rowley, E. & Wagner, A.B. (2019). Citing of industry

		Espacenet, Google Patents; Standards - CSA, Techstreet, ASTM. ASSIGNMENT 3 OUTLINE DUE.	standards in scholarly publications. *Issues in Science and Technology Librarianship,* (92) doi:10.29173/istl27 **REQ** Phillips, M., & Zwicky, D. (2017). Patent information use in engineering technology design: An analysis of student work. *Issues in Science and Technology Librarianship,* (87) doi:10.5062/F4ZS2TR8 **REQ**
	Industry libraries Guest speaker: Kim Feltham (via Skype)		
Week 9 March 12	Information literacy in science libraries Guest speaker: Alison Griffin, Renewable Resources & Business Librarian, BCIT	Journal article discussion.	Lantz, C., & Dempsey, P.R. (2019). Information literacy strategies used by second and third year biology students. Issues in Science and Technology Librarianship, (92) doi:10.29173/istl13 **REQ** American Library Association. (2015). Framework for information literacy for higher education. http://www.ala.org/acrl/standards/ilframework **REC**
	Natural sciences resources (biology, agriculture, forestry, fisheries)	Use Zoological Record, Agricola, CAB, ASFA.	

Week 10 March 19	Popular science resources and communicating science to the public	3-min show & tell. Visit to Beaty Museum (with Jackie Chambers, Education & Outreach Manager)	
Week 11 March 26	Presentations	ASSIGNMENT 3 DUE.	
Week 12 April 2	Presentations. Professional Development: Library associations, conferences, and journals. Guest speaker: Shar Levine and Leslie Johnstone, authors of children's science books	ASSIGNMENT 3 DUE.	

Attendance: Attendance is required in all class meetings. If you know you are going to be absent you must inform us beforehand if at all possible. Excessive absences may affect your participation grade.

Evaluation: All assignments will be marked using the evaluative criteria given on the iSchool web site.

Late Assignments: Without prior permission or proper documentation, late assignments will be penalized at the rate of 10% per day, including weekends.

Your Well- Being: In light of policies above, please know that your physical and mental health is important to us. Family emergencies, physical or mental illness, personal crises, or childcare issues can significantly impact your academic performance or ability to meet deadlines. If academic or personal issues are severely affecting your ability to engage in this course, please contact us (by e- mail, phone, or in- person) and we'll work on a fair resolution. We don't need all the details of your situation, and you may also speak to someone in student services who will work with us to determine adequate accommodations without revealing sensitive information to us.

Policies and Resources to Support Student Success: UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodations for students with disabilities and for religious and cultural observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available here (https://senate.ubc.ca/policies-resources-support-student-success)

Centre for Accessibility: Centre for Accessibility works with the University to create an inclusive living and learning environment in which all students can thrive. The University accommodates students with disabilities who have registered with the Centre for Accessibility unit: [https://students.ubc.ca/about-student-services/centre-for-accessibility]. You must register with the Disability Resource Centre to be granted special accommodations for any on-going conditions.

Religious Accommodation: The University accommodates students whose religious obligations conflict with attendance, submitting assignments, or completing scheduled tests and examinations. Please let your instructor know in advance, preferably in the first week of class, if you will require any accommodation on these grounds. Students who plan to be absent for family obligations, or other similar commitments, cannot assume they will be accommodated, and should discuss with the instructor before the course drop date. UBC policy on Religious Holidays: https://equity.ubc.ca/resources/days-of-significance-calendar/

Academic Integrity

Plagiarism

The Faculty of Arts considers plagiarism to be the most serious academic offence that a student can commit. Regardless of whether or not it was committed intentionally, plagiarism has serious academic consequences and can result in expulsion from the university. Plagiarism involves the improper use of somebody else's words or ideas in one's work. The UBC policy on Academic Misconduct is available here: http://www.calendar.ubc.ca/Vancouver/index.cfm?tree=3,54,111,959.

It is your responsibility to make sure you fully understand what plagiarism is. Many students who think they understand plagiarism do in fact commit what UBC calls "reckless plagiarism." The UBC Learning Commons has a resource page on how to avoid plagiarism, with policies on academic integrity and misconduct found here: http://learningcommons.ubc.ca/resource-guides/avoid-plagiarism/

If after reading these materials you still are unsure about how to properly use sources in your work, please ask your instructor for clarification.