



École des sciences de l'information
School of Information Studies

ISI 5302 Knowledge Organization

Fall 2019, Thursdays 17:30-20:30, Desmarais

Professor: Stefanie Haustein
Office: Desmarais 11102
Tel: 613-562-5800 ext. 1986
Email: stefanie.haustein@uottawa.ca
Office hours: Thursday 16:00-17:00 or by appointment

Course description

ISI5302 Knowledge Organization (3cr.)

Theories, principles, and models underlying the organization of knowledge and the representation of information resources. The course examines various approaches to knowledge organization, drawing on theories based in philosophy, cognitive sciences, linguistics, and other related fields, and explores their application in ontologies, taxonomies, classification systems, indexing languages, folksonomies, and resource description schema.

Course objectives and learning outcomes

Upon completion of this course, students will be able to:

- Understand the theories and principles underlying the organization of knowledge and the relationship of those theories and principles to the ways in which users approach information resources.
- Understand how the principles of knowledge organization and resource description are applied, as illustrated through various types of knowledge organization structures and various approaches to the representation of information resources.
- Apply a variety of methods for organizing knowledge and representing information resources.
- Assess and evaluate the effectiveness of various types of knowledge organization structures.
- Synthesize findings and opinions conveyed in the literature on knowledge organization; cite authorities; and present viewpoints and arguments clearly.

Language of instruction

English

Students may submit their work in either English or French in accordance with the University of Ottawa's Regulation on Bilingualism: <http://web5.uottawa.ca/admingov/bilingualism.html>

Teaching methods

The course will include presentations by the professor, class discussions and exercises, readings, assignments, group work and a final paper.

Communication

Students are encouraged to use the course Slack (invitation via email) to engage in online discussions and share information relevant to the course with each other. The preferred mode of communication with the professor is in person during office hours, before and after class or during individual appointments arranged via Slack or email. Alternatively, the professor can be contacted via Slack or email.

Evaluation methods and distribution of grades

Class participation	5%	The participation component of the grade will take into account preparation and active participation in class discussions and activities. Absences from class must be discussed with the professor.
Assignments	35%	
Group work	30%	
Final paper	30%	
	<hr/>	Deadlines for assignments and the final paper must be respected.
	100%	

Required and recommended readings

Students are expected to retrieve, read and prepare all required readings and at least one recommended reading per week ahead of class and participate in discussions based on those readings.

Academic Regulations

Please consult the University of Ottawa's regulations on:

- **Academic Fraud:** <http://www.uottawa.ca/about/academic-regulation-14-other-important-information>
- **Plagiarism:** <http://www.uottawa.ca/vice-president-academic/sites/www.uottawa.ca.vice-president-academic/files/academic-integrity-students-guide.pdf>
- **Examinations & Grading:** http://www.uottawa.ca/graduate-studies/students/general-regulations?cat_1=89

Sexual Violence

The University of Ottawa does not tolerate any form of sexual violence. Sexual violence refers to any act of a sexual nature committed without consent, such as rape, sexual harassment or online harassment. The University, as well as student and employee associations, offers a full range of resources and services allowing members of our community to receive information and confidential assistance and providing for a procedure to report an incident or make a complaint. For more information, visit uottawa.ca/sexual-violence-support-and-prevention.

Mental Health

The University of Ottawa and your professors are committed to your wellbeing. The University's core values include preparing students to become leaders and encouraging and enabling them to achieve personal growth and wellness. As such, the *Mental Health and Wellness* website acts as a central location for information and resources at our University and in the surrounding community. It is also an excellent tool for family members, friends and colleagues who may need to help someone close to them that is studying or working at the University. For more information, visit uottawa.ca/wellness/.

For 24/7 support, students can call *Good2Talk* at +1 (866) 925-5454. *Good2Talk* is a post-secondary student helpline which provides professional and confidential support for students in Ontario free of charge.

Calendar of activities and evaluations

Date	05.09.	12.09.	19.09.	26.09.	03.10.	10.10.	17.10.	24.10.	31.10.	07.11.	14.11.	21.11.	28.11.	05.12.	12.12.
Week	1	2	3	4	5	6	Reading week	7	8	9	10	11	12	13	14
Assignment	#1	#2	#3		#4								#5		
Group project															
Final paper															

Class presentations and discussions

Each week focuses on a specific topic related to Knowledge Organization (KO) and includes lectures, class and group discussions, practical exercises and assignments.

Week 1. Organizing knowledge: introduction (05.09.)

Course scope, learning objectives and requirements; introduction to the field of KO; outline of concepts, principals and theory related to the nature of data, information and knowledge



Assignment 1: Presenting a KOS (due dates to be discussed)

Required reading:

- Hjørland, B. (2016). Knowledge organization (KO). *Knowledge Organization*, 43(6). 475–484.
<https://doi.org/10.5771/0943-7444-2016-6-475>
- Stock, W. G., & Stock, M. (2013). *Handbook of information science*. Berlin: De Gruyter.
Chapter A.1 “What is Information Science”, 3–19;
Chapter A.2 “Knowledge and Information”, 20–31;
Chapter I.1 “History of Knowledge Organization”, 502–518.

Recommended reading:

- Bates, M. J. (2006). Fundamental forms of information. *Journal of the American Society for Information Science & Technology*, 57(8), 1033–1045. <https://doi.org/10.1002/asi.20369>
- Buckland, M. K. (1991). Information as thing. *Journal of the American Society for Information Science*, 42(5), 351–360.
- Farradane, J. (1979). The nature of information. *Journal of Information Science*, 1(1), 13–17.
- Ma, (2012). Meanings of information: The assumptions and research consequences of three foundational LIS theories. *Journal of the American Society for Information & Technology*, 63(4), 716–723. <https://doi.org/10.1002/asi.2171>

Week 2. Aboutness, subjectivity and relevance (12.09.)

Aboutness, subjectivity and relevance in subject indexing; interaction between users and Knowledge Organization Systems (KOSs); automated indexing and abstracting



Assignment 2: Aboutness (due 16.09.)

Required reading:

- Beghtol, C. (1986). Bibliographic classification theory and text linguistics: Aboutness analysis, intertextuality and the cognitive act of classifying documents. *Journal of Documentation*, 42(2), 84–113. <https://doi.org/10.1108/eb026788>
- Borlund, P. (2003). The concept of relevance in IR. *Journal of the American Society for Information Science and Technology*, 54(10), 913–925. <https://doi.org/10.1002/asi.10286>
- Wilson, P. (1978). Subjects and the sense of position. In *Two kinds of power: An essay on bibliographic control* (pp. 69–92). Berkeley, CA: University of California Press.

Recommended reading:

- Hjørland, B. (2010). Towards a theory of aboutness, subject, topicality, theme, domain, field, content ... and relevance. *Journal of the American Society for Information Science & Technology*, 52(9), 774–778.
- Stock, W.G., & Stock, M. (2013). *Handbook of information science*. Berlin: De Gruyter.
Chapter I.2 “Basic Ideas of Knowledge Representation”, 519–530;
Chapter N.1 “Intellectual Indexing”, 759–771;
Chapter N.2 “Automatic Indexing”, 772–780.

Week 3. Knowledge organization on social media (19.09.)

Crowdsourced subject indexing and resource discovery; folksonomies; social tagging and tag gardening



Assignment 3: Social Tagging (due 23.09.)

Required reading:

Dorsch, I. (2018). Content description on a mobile sharing service: Hashtags on Instagram. *Journal of Information Science Theory and Practice*, 6(2), 46–61. <https://doi.org/10.1633/JISTaP.2018.6.2.4>
Golder, S.A., & Huberman, B.A. (2006). Usage pattern of collaborative tagging systems. *Journal of Information Science*, 32(2), 198–208. <https://doi.org/10.1177/0165551506062337>

Recommended reading:

Haustein, S., & Peters, I. (2012). Using social bookmarks and tags as alternative indicators of journal content description. *First Monday*, 17(11). <https://doi.org/10.5210/fm.v17i11.4110>
Peters, I. (2009). *Folksonomies. Indexing and Retrieval in Web 2.0*. Berlin: De Gruyter Saur.

Week 4. Metadata (26.09.)

Metadata of different documents; metadata schema; information resource discovery



Assignment 4: Metadata (due 30.09.)

Recommended reading:

Pomerantz, J. (2015). *Metadata*. Cambridge, MA: MIT Press.
Chapter 2 “Definitions”, 19–64;
Chapter 3 “Descriptive Metadata”, 65–91.

Recommended reading:

Gilliland, A. J. (2008). Setting the stage. In M. Baca (Ed.), *Introduction to metadata*, (Online ed., version 3.0). Retrieved from: <http://www.getty.edu/publications/intrometadata/setting-the-stage/>
Stock, W.G., & Stock, M. (2013). *Handbook of information science*. Berlin: De Gruyter.
Chapter J.1 “Bibliographic Metadata”, 567–585;
Chapter J.2 “Metadata about Objects”, 586–597.

Week 5. Cataloging (03.10.)



Guest speaker: Christine Oliver (uOttawa Library, Head of Resource Description and Metadata Services)

Organization of the works of authors, artists, composers, filmmakers, etc. in catalogs and bibliographies; Research Description and Access (RDA); Functional Requirements for Bibliographic Records (FRBR)

Required reading:

Smiraglia, Richard P. (2003). The history of “the work” in the modern catalog. *Cataloging & Classification Quarterly*, 35(3/4), 553–567. https://doi.org/10.1300/J104v35n03_13

Recommended reading:

- Carlyle, A. (2006). Understanding FRBR as a conceptual model: FRBR and the bibliographic universe. *Library Resources & Technical Services*, 50(4), 264–273. <https://doi.org/10.5860/lrts.50n4.264>
- Riva, Pat, Žumer, Maja (2017). The IFLA Library Reference Model, a step toward the Semantic Web. *83rd IFLA World Library and Information Congress*, Wrocław, Poland, 2017. Available at: <http://library.ifla.org/1763/1/078-riva-en.pdf>

Week 6. Citation indexing (10.10.)

KO of scientific publications and disciplines; citation indexing as author-based indexing;
Science Citation Index and Web of Science



Assignment 5: Citation indexing (due 14.10.)

Required reading:

- Garfield, E. (1955). Citation indexes for science: New dimensions in documentation through association of ideas. *Science*, 122(3159), 108–111. <https://doi.org/10.1126/science.122.3159.108>
- Garfield, E. (1970). Citation analysis as a tool in journal evaluation – Journals can be ranked by frequency and impact of citations for science policy studies. *Science*, 178(4060), 471–6. <https://doi.org/10.1126/science.178.4060.471>

Recommended reading:

- Stock, W.G., & Stock, M. (2013). *Handbook of information science*. Berlin: De Gruyter.
Chapter M.2 “Citation Indexing”, 744–755.

Week 7. Clustering and mapping of similar documents (24.10.)

Social network analysis (SNA) as a bottom-up approach to KO; bibliometric maps and knowledge networks; document clustering and similarity

Required reading:

- Börner, K., Klavans, R., Patek, M., Zoss, A.M., Biberstine, J.R., Light, R.P., Larivière, V., & Boyack, K.W. (2012). Design and update of a classification system: The UCSD map of science. *PLOS ONE*, 7(7), e39464. <https://doi.org/10.1371/journal.pone.0039464>

Recommended reading:

- Van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523–538.

Week 8. Categorization and classification (31.10.)

Enumerative and analytico-synthetic classification schemes; Dewey Decimal Classification (DDC); Library of Congress Classification (LCC); Universal Decimal Classification (UDC); Bliss Bibliographic Classification (BC); Colon classification (CC)

Required reading:

- Jacob, E. K. (2004). Classification and categorization: A difference that makes a difference. *Library Trends*, 52(3), 515–540.
- Mazzocchi, F. (2018). Knowledge Organization Systems (KOS): An introductory critical account. *Knowledge Organization*, 45(1), 54–78.

Recommended reading:

- Broughton, V. (2006). The need for a faceted classification as the basis of all methods of information retrieval. *Aslib Proceedings*, 58(1/2), 49–72. <https://doi.org/10.1108/00012530610648671>
- Stock, W.G., & Stock, M. (2013). *Handbook of information science*. Berlin: De Gruyter.
- Chapter L.1 “Nomenclature”, 635–646;
- Chapter L.2 “Classification”, 647–674;
- Chapter L.5 “Faceted Knowledge Organization Systems”, 707–718.

Week 9. Taxonomies, thesauri and ontologies (07.11.)

Differences between taxonomies, thesauri and ontologies as KOSs; Linnean taxonomy; Medical Subject Headings (MeSH); Arts and Architecture Thesaurus; Friend of a Friend (FOAF); gazetteers

Required reading:

- Gilchrist, A. (2003). Thesauri, taxonomies and ontologies: An etymological note. *Journal of Documentation*, 59(1), 7–18. <https://doi.org/10.1108/00220410310457984>
- Stock, W.G., & Stock, M. (2013). *Handbook of information science*. Berlin: De Gruyter.
- Chapter L.3 “Thesaurus”, 675–696;
- Chapter L.4 “Ontology”, 697–706.

Recommended reading:

- Giménez-Chornet, V., & Escrig-Giménez, M. (2011). Designing a thesaurus to give visibility to the historical archives in the Archivo del Reino in Valencia. *Knowledge Organization*, 38(2), 154–166.
- Milne, C. (2010). Developing information architecture through records management classification techniques. *Aslib Proceedings*, 62(4/5), 366–386. <https://doi.org/10.1108/00012531011074636>

Week 10. Semantic Web and Linked Open Data (14.11.)



Guest speaker: Constance Crompton (uOttawa, Dept. Communication, CRC Digital Humanities)

Semantic web; ontologies and Web Ontology Language (OWL); Linked Open Data (LOD); 5-star open document and data scheme; Resource Description Framework (RDF); Internet of Things

Required reading:

- Berners-Lee, T., Hendler, J., & Lassila, O. (2001). The Semantic Web. *Scientific American*, 284(5), 34–43.
- Shadbolt, N., Hall, W., & Berners-Lee, T. (2006). The Semantic Web Revisited. *IEEE Intelligent Systems*, 96–101.
- Pomerantz, J. (2015). *Metadata*. Cambridge, MA: MIT Press.
- Chapter 7 “The Semantic Web”, 153–186.

Recommended reading:

- Allemang, D., & Hendler, J.A. (2011). *Semantic Web for the Working Ontologist: Modeling in RDF, RDFS and OWL* (2nd ed.), Elsevier.
Chapter 1 “What is the Semantic Web?”, 1–12.
- Brown, S., & Simpson, J. (2013). “The Curious Identity of Michael Field and Its Implications for Humanities Research with the Semantic Web.” *2013 IEEE International Conference on Big Data*, 2013, pp. 77–85. IEEE: Silicon Valley, CA.

Week 11. Indigenous and non-traditional KO (21.11.)



Guest speaker: Claudette Commanda (invited)

Indigenous KO; adopting and revising existing KOSs for indigenous KO; Xwi7xwa Classification Scheme and First Nations Names Authority List; Representation of LGBTQ and PoC in KOSs

Required reading:

- Drabinski, E. (2013). Queering the Catalog: Queer Theory and the Politics of Correction. *The Library Quarterly*, 83(2), 94–111.
- Lee, D. (2011). Indigenous Knowledge Organization: A Study of Concepts, Terminology, Structure and (Mostly) Indigenous Voices. *Partnership: The Canadian Journal of Library and Information Practice and Research*, 6(1). <https://doi.org/10.21083/partnership.v6i1.1427>

Recommended reading:

- Adler, M., & Harper, L.M. (2018). Race and Ethnicity in Classification Systems: Teaching Knowledge Organization from a Social Justice Perspective. *Library Trends*, 67(1), 52–73.
<https://doi.org/10.1353/lib.2018.0025>
- Helton, L. A. (2019). On Decimals, Catalogs, and Racial Imaginaries of Reading. *PMLA*, 134(1), 99–120.

Week 12. Evaluating and designing Knowledge Organization Systems (28.11.)



Group presentations and evaluation of designed KOSs

Assignment 5: Evaluation of KOSs (due 28.11., in class)

Assignments

With the exception of *Assignment 1*, assignments need to be submitted individually via BrightSpace and are due at 11:59 PM each Monday after they were assigned. Late submissions will be penalized by 5% per day, exceptions must be discussed with the professor before the due date. *Assignment 1* is a group work where two students prepare a short presentation about a KOS of your choice presented during one of the classes (dates to be discussed).

Assignment 1: Presentation of a KOS (due dates t.b.d., between 12.09. and 21.11.)

Assignment 2: Aboutness (due 16.09.)

Assignment 3: Metadata (due 30.09.)

Assignment 4: Citation indexing (due 14.10)

Final exam

The final exam consists of the KOS group project and a final paper. For the group projects students develop and design, in groups of 3-4, a KOS of their choice, which demonstrates a minimum of one KO feature discussed in class. Results are presented in 20-minute presentations in class in week 12.

The final paper is based and elaborates on the KOS group project developed during the semester and presented in week 12. The final paper can be submitted as a group work, where each group member contributes approx. 2,000 words or individually (2,500 words), excluding figures, tables and references. The paper needs to be written double-spaced text with references formatted in APA citation style. You are expected to cite a minimum of five journal articles to support your claims. The document needs to be submitted in PDF.

Group presentation (due 28.11., in class)

Final paper (due 12.12.)