



Semester description

7th semester Information Architecture

Semester details School: School of Communication, Art and Technology (CAT) Study board: Storyboard for Communication and Digital Media Study regulation: http://www.fak.hum.aau.dk/digitalAssets/107/107892_ka_interaktivedigitalemedier_2015_hum_aau.dk.pdf
Semester framework theme This master module focuses on design of information architecture (IA) for communication and human-computer interaction at web sites, social network, portals, online communities, intranets, e-learning systems. User-centred design that takes into account the users as well as technology. The students will build on communication theory from the bachelor education regarding genres, metaphors and patterns, and will learn to observe, analyse and interpret Information Architecture across media and organizational boundaries, and to understand why and how categorizing and knowledge organization has formatting impact on information handling and knowledge sharing.
Semester organisation and time schedule This semester consists of three overall courses; Categorization, Concept and Cognition (5 ECTS), Information Architecture, Rhetoric and Persuasive Design (15 ECTS), and Web Technology: Databases (10 ECTS). Categorization represents the theoretical perspective of categorization and cognition, whereas IA rhetoric presents core elements in designing information architecture. The ecology perspective was earlier represented by following the course "Design theory and method" with 7 th semester HCI. However, as this course has moved to a different semester, the IA students follow (relevant) parts of the 7 th semester HCI course "User practice" instead. Hence, the ecological perspective on this semester is represented by an extension of the user perspective. Lastly, ICT technology represents the technological angle on IA in that the students are presented with database principles.
Semester coordinator and secretariat assistance Anchorperson: Tanja Svarre. Course coordinator: David Jakobsen (Categorization, concepts and cognition), Tanja Svarre (Information architecture, rhetorics and persuasive design), Birger Larsen (Web technology and databases). Secretariat assistance provider: Pia Knudsen piak@hum.aau.dk

Module description

"Categorization, concepts, and cognition"

Module title, ECTS credits "Categorization, concepts, and cognition" 5 ECTS
Location 7 th semester Study board Communication and Digital Media
Module coordinator David Jakobsen

Type and language

Study module

English

The module will introduce the students to theories on the ontology and structure of concepts, based on an understanding of human cognition. During the course module, the students will engage in lectures and discussions on the notion of concept, categorisation and ontology.

Objectives

In the module the students will acquire knowledge of:

- The notion of concept and ontology
- Theories of categorisation
- Theories of cognition

skills in

- detecting the needs for concept formation and categorisation as part of an information architecture design process
- observing and analysing problems relation to concept formation and categorisation

competences:

- taking an analytical, reflective and critical approach to the use of the notion of concepts and categorisation
- engaging in an interdisciplinary collaboration on concept formation and categorisation problems in a specific context
- identifying own learning needs and structuring own learning in relation to the use of the notion of concepts and categorisation

Academic content and basis

Cf. semester description

Scope and expectations

The module equals 5 ECTS points corresponding to a student workload of app. 137, 5 working hours.

Module activities (course sessions etc.)**Categorization and Propositions**

Ontology and Categorization as a way to manage scientific information that allows combinability and comparability across domains.

Introduction to Categorization.

Introduction to Ontology.

Introduction to Classical Logic – The Square of Oppositions from Aristoteles.

Tutorials and Exercises in Logic – Categorical Propositions.

Readings:

Arp, Smith & Spear (2015) Building Ontologies with Basic Formal Ontology, Ch. 1

Copy and Cohen (1994), Introduction to Logic Chap 5. 205 – 242.

Historical and Conceptual Foundation for Diagrammatical Ontology. (2007)

Taxonomies & Syllogisms

Ontologies as representational artifacts that designates universals, defined classes, and relations between them.

Introduction to Taxonomies – The Tree of Porphyry

Tutorials and Exercises in Logic – Categorical Syllogisms

Readings:

Arp, Smith & Spear (2015) Building Ontologies with Basic Formal Ontology, Ch. 2

Copy and Cohen (1994), Introduction to Logic Chap 6. 244 – 267.

Designing Ontologies

The importance of proper formal representation of subject matter and the scope of domain is necessary for designing successful ontologies.

Principles of Perspectivalism and Fallibilism with regard to Ontologies.

The important of definitions.

Tutorials and Exercises in Logic – Definition

Readings:

Arp, Smith & Spear (2015) Building Ontologies with Basic Formal Ontology, Ch. 3 & 4.

Copy and Cohen (1994), Introduction to Logic Chap 4. 165 – 202.

Time and Classification

The role of time with regard to Categorization and Formal Reasoning.

Tensed ontology problems and possible solutions.

Readings:

Jakobsen, David; Schärfe, Henrik; Øhrstrøm, Peter: A.N. Prior's ideas on Tensed Ontology. (2011)

Arp, Smith & Spear (2015) Building Ontologies with Basic Formal Ontology, Ch. 5 & 6.

Ontology in Practice

Formal ontology are sought incorporated in different areas, and the focus will be on developing artificial intelligence in Smart Homes.

Introduction to Semantic Web, Resource Description Framework and OWL.

Readings:

Augusto, Juan C & Nugent, Chris D. 'Smart Homes Can Be Smarter', (1998) in Designing Smart Homes, Springer.

Arp, Smith & Spear (2015) Building Ontologies with Basic Formal Ontology, Ch. 8.

Realism vs. Conceptualism

The gap of perception between the perceived and the concept raises the question of how we ought to make formal ontology? Should we make taxonomies of reality, or our concepts about reality.

Readings:

Hugh Gauch Jr. (2003) Scientific Method in Practise, chap 2.
Arp, Smith & Spear (2015) Building Ontologies with Basic Formal Ontology, Ch. 1 & 2

Basic-level categorizations and prototype theory

Categorization in itself can be seen as one of the most important issues in cognition. In this session we discuss categorization from a cognitive psychology point of view.

Readings:

Eleanor Rosch: Principles of Categorization. In Rosh, E. & Lloyd, B.B. (eds) Cognition and Categorization 27-48. Hillsdale, NJ: Lawrence Erlbaum

Categorization and classification as infrastructures

categories and classifications play important and invisible roles in shaping the world and our lives. In this session we discuss the consequences of various categorization systems from a social, political and even ethical point of view.

Readings:

Bowker, G.C & Star S.L.: Invisible mediators of action: Classification and the ubiquity of Standards. Mind, Culture, and Activity, 7:1-2, 147-163

Examination 2

An internal and individual written test in: Categorisation, Concepts, and Cognition
The test should be carried out within 3 days. The student should produce a report on a given categorisation problem. The report may not exceed 10 pages. Alternatively, it could take the form of a digital presentation.

Literature foundation: 500 standard pages supervisor approved, self-selected literature related to the project.

Evaluation: pass/fail

In the evaluation of the examination performance, the assessment of 'pass' will be awarded to students who demonstrate that they have fulfilled the above objectives to a satisfactory extent.

The assignment paper will be evaluated by the examiner; in case of a fail grade, the assignment paper will also be evaluated by another internal examiner.

The study elements on which the examination is based is equivalent to 5 ECTS

Module description

Information Architecture, Rhetoric and Persuasive Design of Information Architecture

Module title, ECTS credits

Informationsarkitekturens/ Information Architecture, Rhetoric and Persuasive Design of Information Architecture
15 ECTS

Location

7th semester
Study board Communication and Digital Media

Module coordinator

Tanja Svarre (module coordinator), Marianne Lykke, Sandra Burri
<p>Type and language Project module English</p>
<p>The module will introduce the students to key elements of Information Architecture, including experiential, rhetorical and persuasive design principles. During the course module, the students will engage in lectures and discussions on information architecture, knowledge organisation, rhetoric, persuasive and experience design.</p> <p>Objectives In the module the students will acquire knowledge of:</p> <ul style="list-style-type: none"> • Information Architecture • Rhetoric • Persuasive design • Experience design • Knowledge organisation • Knowledge of how information architectures participate in an interplay with usability, experiences and learning. <p>Skills in</p> <ul style="list-style-type: none"> • observing, analysing and interpreting information architectures irrespective of medial and organisational boundaries, • evaluating the use of rhetoric in ICT systems • analysing the conceptual control and consistency in information architectures, their communicative effects and potential for further development <p>Competences in</p> <ul style="list-style-type: none"> • taking an analytical, reflective and critical approach to the use of information architecture, rhetoric, persuasive and experience design • engaging in an interdisciplinary collaboration on information architectures, rhetoric, persuasive and experience design in a specific context • identifying own learning needs and structuring own learning in relation to the use of information architecture, rhetoric, persuasive and experience design in a specific context.
<p>Academic content and basis Cf. semester description</p>
<p>Scope and expectations The module equals 15 ECTS points corresponding to a student workload of app. 412, 5 working hours.</p>
<p>Participants 7th semester IA students</p>
<p>Prerequisites for participation BA-level in studies accepted by the study board of Communication and Digital Media</p>
<p>Module activities (course sessions etc.) <u>Semester introduction and introduction to information architecture</u></p> <p>Apart from an introduction to the semester, the courses and the project module, today you will be introduced to the notion of information architecture, the four information architecture somponents and their relation, and cross/multi/omni channel information architectures.</p> <p>Readings: Benyon, D. (2012). Presence in blended spaces. <i>Interacting with Computers</i>, 24(4), 219-226. Available here.</p>

Fischer, J., Norris, S. & Buie, E. (2012). Sense-making in cross-channel design. *Journal of Information Architecture*, 4(1-2). Available [here](#).

Morville, P. & Rosenfeld, L. (2008). *Information Architecture for the World Wide Web*. Sebastopol: O'Reilly. Ch. 5-8. Available [here](#).

Supplementary readings:

Morville, P. & Rosenfeld, L. (2008). *Information Architecture for the World Wide Web*. Sebastopol: O'Reilly. Ch. 1. Available [here](#).

Russel-Rose, T. & Tate, T. (2013). *Designing the Search Experience: The Information Architecture of Discovery*. Waltham: Morgan Kaufmann. Ch. 10. Available [here](#).

User practice and interaction

Understanding users information practice is a prerequisite for designing good information architecture. The lecture introduces the notion of information seeking to provide a framework for understanding users interaction with information. Core models and theories of seeking practice will be used as the point of departure. Also we will discuss the concept of interaction.

Readings:

Dourish, P. (2003). The appropriation of interactive technologies: Some lessons from placeless documents. *Computer Supported Cooperative Work*, 12(4), 465-490. Available [here](#).

Dourish, P. (2001). *Where the Action is: The Foundations of Embodied Interaction*. Boston: MIT. Ch. 1. Available in the lecture folder.

Kim, K. (2001). Information-seeking on the web: Effects of user and task variables. *Library & Information Science Research*, 23(3), 233-255. Available [here](#).

Kuhlthau, C. (1991). Inside the search process: Information seeking from the user's perspective. *Journal of the American Society for Information Science*, 42(5), 361-371. Available [here](#).

Russel-Rose, T. & Tate, T. (2013). *Designing the Search Experience: The Information Architecture of Discovery*. Waltham: Morgan Kaufmann. Ch. 1-3. Available [here](#).

Wilson, T.D. (1999). Models in information behavior research. *Journal of documentation*, 55(3), 249-270. Available [here](#).

Knowledge organization (KO)

The lecture will introduce to the field of knowledge organization (KO) – how to represent, describe and organize knowledge in digital systems. The lecture will focus on the role of knowledge organization and on tools and techniques. Concerning tools we will concentrate on metadata and taxonomies, their specific role and conceptual characteristics, including advantages and challenges.

Readings:

Gilliland, AJ (2000). Setting the stage. In: Baca, M (ed.). *Metadata. Pathways to digital information*. Online edition, version 2.1. Getty Information Institute. Available [here](#).

Lampe, P. (2007). *Organising knowledge: taxonomies, knowledge and organisational effectiveness*. Oxford: Chandos. 49-66, 97-151. Available [here](#).

Zeng, M L (2008). Knowledge organization systems (KOS). *Knowledge Organization*, 35(2/3). 160-182.

Search and navigation

The lecture will present the concepts of search and navigation from a user *and* a design perspective.

Readings:

Morville, P. & Rosenfeld, L. (2007). *Information architecture for the World Wide Web*. Sebastopol (CA): O'Reilly, Available [here](#). Ch. 7-8.

Russel-Rose, T. & Tate, T. (2013). *Designing the Search Experience*. Waltham: Morgan Kaufman. Available [here](#). Ch. 5-7.

Tunkelang, D. (2009). *Faceted search*. San Rafael: Morgan Claypool. (Synthesis Lectures on Information Concepts, Retrieval, and Services, 5). Available [here](#). Pp. 1-26.

Wilson, M.L. (2012). *Search User Interface Design*. San Rafael: Morgan Claypool. (Synthesis Lectures on Information Concepts, Retrieval, and Services, 20). Available [here](#). Pp. 1-80.

Supplementary readings:

Kalbach, J. (2007). *Designing web navigation*. Sebastopol: O'Reilly. Available [here](#). Pp. 2-118

Mobile information architecture

The lecture concerns the specific characteristics of mobile platforms. The topic is addresses from a user perspective as regards user practice on mobile platforms, and from a design perspective as regards the specific considerations to make in designing for mobile platforms.

Readings:

Ding, W. & Lin, X. (2010). *Information Architecture: The Design and Integration of Information spaces*. San Rafael, Calif.: Morgan & Claypool Publishers. U.S. Available [here](#). Ch 9

Falaki, H. et al. (2010). Diversity in smartphone usage. *Proceedings of the 8th international conference on Mobile systems, applications, and services (Mobisys '10)*. New York: ACM. Pp. 179-194. Available [here](#).

Hoober, S. & Berkman, E. ((2011). *Designing Mobile Interfaces*. Sebastopol: O' Reilly. Available [here](#). Ch. 1-2

Nielsen, J. & Budiu, R. (2013). *Mobile Usability*. Berkeley: New Riders. Available [here](#). Ch. 2-5

Tossell, C. et al. (2012). Characterizing web use on smartphones. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '12)*. New York: ACM. Pp. 2769-2778. Available [here](#).

Rhetorics

Whilst classical rhetoric is most often considered in relation to communication, rhetorical concepts also hold potential in relation to digital design. Digital design can in some extent be considered a particular type of communication, as the design facilitates the users understanding of the intended use.

In this lecture, central concepts of classical rhetoric are introduced and discussed in relation to digital design and information architecture

Readings:

Hasle, P and Christensen, A. K. (2007). *Classical Rhetoric and a Limit to Persuasion*. Persuasive Technology, Palo Alto, Springer.

IA evaluation

The lecture concentrates on methodologies for the analysis and evaluation of information architectures. The lecture will present approaches to and types of evaluation – the why, what, where, and when. The DECIDE framework is presented as a tool to plan and guide evaluation, and a set of evaluation methods, qualitative as well as quantitative oriented methods, will be introduced.

Readings:

Rogers, Y., Sharp, H. & Preece, J. (2011). Interaction design, beyond human-computer interaction. Chichester: Wiley. 433-530. Available [here](#).

Kelly, D. (2009). Methods for evaluating interactive information retrieval systems with users. *Foundations and Trends in Information Retrieval*, 3(1-2), 1-224. Available [here](#).

Ethics

This lecture introduces some of the key perspectives of applied ethics, such as utilitarianism, deontology and ontology. Apart from a general introduction to these diverse approaches to ethics, the lecture will address ways to include ethics in the development and evaluation information systems.

Readings:

Albrechtslund, A. (2007). "Ethics and Technology Design." *Ethics and Information Technology* 9(1): 63-72.

Gram-Hansen, S. B. (2009). Towards an Approach to Ethics and HCI Development, based on Løgstrup's Ideas. Interact, Uppsala, Springer.

Davis, J. (2009). Design methods for ethical persuasive computing. Proceedings of the 4th International Conference on Persuasive Technology. Claremont, California, ACM.

Exercise: Evaluation

Persuasive design and mobile persuasion

This lecture provides a general introduction to persuasive technology and persuasive design. In this lecture we will draw upon classical rhetoric and ethics, as we discuss the claim of persuasive design in relation to information architecture.

Readings:

Lykke, M. (2009). Persuasive design strategies: means to improve the use of information organisation and search features in web site information architecture? ASIST Special Interest Group on Classification Research 20th Workshop. Vancouver.

Gram-Hansen, S. B. and T. Ryberg (2013). "Persuasion, Learning and Context Adaptation." Special Issue of the International Journal on Conceptual Structures and Smart Applications.

Fogg, B. (1998). *Persuasive Computers, Perspectives and research directions*. CHI, ACM Press.

Design exercise and closing the course

Examination 1

An internal oral test in: Information Architecture, Rhetoric, Persuasive Design, and Experience Design. The test takes its point of departure in a project report that may not exceed 15 pages per student in the group, and may not exceed 20 pages for individual projects.

Literature foundation: 1500 standard pages supervisor approved, self-selected literature related to the project.

Evaluation: Grading according to the 7-point scale.

The study elements on which the evaluation is based are equivalent to 15 ECTS.

In the evaluation of the examination performance, the grade 12 will only be awarded to students who give an excellent performance and demonstrate that they have fulfilled the above objectives exhaustively or with only a few insignificant omissions.

Module description

Web Tecnology and Data Bases

Module title, ECTS credits It-teknik, databaser/ Web Tecnology: Data Bases 5 ECTS
Location 7 th semester Studyboard for Communication and Digital Media
Module coordinator Birger Larsen
Type and language Study module English
Objectives The module will introduce the students to basic web technology, database construction, data modelling, and modelling of search tools. The module consists of a combination of lectures and hands-on exercises to introduce the students to specific tools and methods for constructing databases and web technologies. Objectives In the module the students will acquire knowledge of: <ul style="list-style-type: none">• Web technologies and their use in knowledge organization• Databases and their use in knowledge organization• Search engines Skills in <ul style="list-style-type: none">• Selecting, adapting and evaluating web technologies for knowledge organization• Construction of databases and search tools• Carrying out data modeling, for instance by means of UML or ERD's Competences in <ul style="list-style-type: none">• Taking an analytical, reflective and critical approach to applying web technologies, databases for knowledge organization• Reflecting on own practice and documentation hereof• Identifying own learning needs and structuring own learning in relation to applying web technologies, databases for knowledge organization
Academic content and basis Cf. semester description
Scope and expectations The module equals 10 ECTS points corresponding to a student workload of app. 275 working hours.
Participants 7 th semester IA students
Prerequisites for participation Relevant bachelor's degree
Module activities (course sessions etc.)

Block 1: Introduction to databases

Introduction to databases and search engines.
Introduction to structured data and SQL.
Exercises in creation of databases in MySQL.

Readings:

Ullman, L. (2008): *PHP 6 and MySQL 5 for Dynamic Web Sites: Visual QuickPro Guide (3rd Edition)*.
Berkeley: Peachpit Press. Intro and ch. 4-6.

Block 2: Databases on the Internet

Introduction to databases on the Internet.
Introduction to PHP.
Exercises in making database content available on the web using PHP.

Readings:

Ullman, L. (2008): *PHP 6 and MySQL 5 for Dynamic Web Sites: Visual QuickPro Guide (3rd Edition)*.
Berkeley: Peachpit Press. Ch. 1-3 and 7-8.

Block 3: Search engines

Introduction to searching unstructured text.
Exercises in search engines (indexing, search and display).

Readings:

Croft, W. B., Metzler, D. & Strohman, T. (2015): *Search Engines - Information Retrieval in Practice*. Amherst:
University of Massachusetts. Ch. 1-2, 5, 7-8.

Supplementary readings:

Croft, W. B., Metzler, D. & Strohman, T. (2015): *Search Engines - Information Retrieval in Practice*. Amherst:
University of Massachusetts. Ch. 3, 6.

Examination (Examination 7)

An internal written individual test in: Web technology and databases. The test takes the form of a set take-home assignment to be handed in after 3 days. In the test, the student completes a designated task within the subjects covered by the course. The assignment paper must demonstrate that the student fulfills the objectives for the module stated above.

Literature foundation: 1000 standard pages supervisor approved, self-selected literature related to the project.

Evaluation: Grading according to the 7-point scale.

The study elements on which the examination is based is equivalent to 10 ECTS. In the evaluation of the examination performance, the grade 12 will only be awarded to students who give an excellent performance and demonstrate that they have fulfilled the above objectives exhaustively or with only few insignificant omissions.