

Foundations of Linked Data – Summer 2024

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The syllabus provides basic information on the Foundations of Linked Data course as of April 11, 2024.

Overall Goal

The goal of the course is to introduce Linked Data, a popular mechanism for publishing and accessing data on the World Wide Web. Figure 1 shows a diagram with datasets published as Linked Data.

After successfully completing the course, you will be able to access data on the web, model and publish data, integrate and query data from multiple web sources and create applications based on components with a Linked Data interface.

Major Topics

The course covers the following topics:

- Reading and writing RDF documents in Turtle syntax
- Accessing and publishing RDF documents as Linked Data
- Querying both local and online data with SPARQL
- Translating SPARQL queries to SPARQL algebra expressions
- Applying Linked Data technologies for Enterprise Knowledge Graphs
- Modelling and publishing own vocabularies in RDF Schema and OWL (Web Ontology Language)
- Defining the model-theoretic meaning of RDF graphs
- Carrying out SPARQL query evaluation, including entailment

Course Organisation

All materials and meetings are in English. We use the inverted classroom concept:

- Anytime, watch the pre-recorded lecture videos available on FAU.tv¹ and work through the exercises.
- On Fridays 13:15 – 14:45, join the exercise sessions via Zoom².
- On Wednesdays 13:15 – 14:45, join the plenary sessions either remotely via Zoom³ or in person in room LG H6 BISSANTZ-Hörsaal⁴.
- Anytime, use the StudOn forum⁵ to ask questions. We encourage you to reply to questions of your fellow students and engage in discussions in the forum.

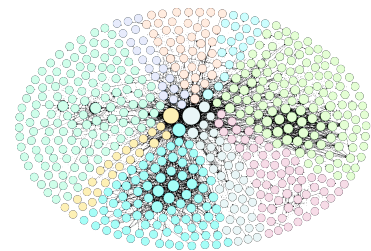


Figure 1: Linking Open Data cloud diagram, August 2014. Each circle represents a dataset. Lines represent links between datasets. Diagram by Max Schmachtenberg, Christian Bizer, Anja Jentzsch and Richard Cyganiak. <http://lod-cloud.net/>

¹ <https://www.fau.tv/course/id/2956.html>

² <https://fau.zoom-x.de/j/62882299225?pwd=bW9lQ0ljNGVEWHNqbWFPNGcxV3U2dz09>

³ Same Zoom room as the exercise sessions.

⁴ http://univis.uni-erlangen.de/formbot/dsc_3Danew_2Froom_view_26rooms_3Drw_2Fserw_2Fwirau_2Fflgh6_26dir_3Drw_2Fserw_2Fwirau_26lang_3Den_26ref_3Droom

⁵ https://www.studon.fau.de/studon/goto.php?target=crs_5533245

Dates

#	Lecture/Event	Exercises (Fr)	Plenary (Wed)	Bonus Tasks
0	Welcome and Introduction		Apr 17	
1	Hypertext, the Internet and the Web	Apr 19	Apr 24	Task 1 start: Apr 19
2	The Linked Data Principles	Apr 26	-	Task 1 due: May 12
3	The Resource Description Framework	May 3	May 8	
4	Querying RDF Datasets with SPARQL	May 10	May 15	Task 2 start: May 10
5	Processing SPARQL Queries	May 17	May 22	
-	Set Theory Recap	-	-	
6	Publishing and Consuming Linked Data	-	June 5	Tasks 2 due: June 2
7	Applications of Linked Data	June 7	June 12	
8	Data Modelling and Vocabulary Descriptions	June 14	June 19	Task 3 start: June 14
9	Semantics of RDF and RDF Schema Vocabularies	June 21	June 26	
10	Data Modelling with OWL LD	June 28	July 3	
11	Combining Query Processing with Entailment	July 5	July 10	Task 3 due: July 6
-	Recap Session + Q&A	-	July 17	

Exam and Bonus Tasks

The exam will take place between July 22 and August 24 and the registration period will begin on May 27. The exact date will be announced by the Examinations Office and cannot be changed by us.

The written exam will take 60 minutes. The exam questions will be in English; you may answer in English or in German.

We introduce the bonus tasks in the exercise sessions and make the task descriptions available via StudOn shortly before the start of the task.

You can achieve a 0.3/0.4 grade improvement if you submit correct solutions to all three bonus tasks on time.

You have to submit your solutions to bonus tasks via StudOn. See the table above for submission deadlines. Submission deadlines always are on Sunday 23:59 CEST.

Contact

If you have any question regarding the lecture, please use the StudOn forum⁶ on StudOn. Or, if you cannot help it, send an email⁷. If we receive questions via email, we most likely we will tell you to ask your question again on the public forum.

⁶ https://www.studon.fau.de/studon/goto.php?target=crs_5533245

⁷ <mailto:wiso-ti-fld@lists.fau.de>