

Foundations of Linked Data - Summer 2022

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Overall Goal

You will learn the vital technologies to create and query Linked Data that can be used as basis for Enterprise Knowledge Graphs. These technologies are used for accessing, modelling, publishing data on the web and perform reasoning on that data.

Major Topics

The course covers the following topics:

- Reading, writing, and publishing RDF[s] (Resource Description Framework [Schema]) and OWL (Web Ontology Language) documents in Turtle syntax
- Querying local and remote data with SPARQL (SPARQL Protocol And RDF Query Language) while understanding its algebra
- Manipulating data and creating applications based on components with a Linked Data interface
- Perform reasoning on datasets
- Applying Linked Data technologies for building Enterprise Knowledge Graphs

Dates

#	Lecture/Event	Exercises (Fr	Plenary (Wed)	Bonus Tasks
0	Welcome and Introduction	-	April 27	
1	Hypertext, the Internet and the Web	Apr 29	May 4	Start: Task1
2	The Linked Data Principles	May 6	May 11	
3	The Resource Description Framework	May 13	May 18	Start: Task2
4	Querying RDF Datasets with SPARQL	May 20	May 25	Due: Task1
5	Processing SPARQL Queries	May 27	June 1	
-	Set Theory Recap ¹	June 10	June 8	
6	Publishing and Consuming Linked Data	June 3 ²	June 15	Due: Task2
7	Applications of Linked Data	June 17	June 22	
8	Data Modelling and Vocabulary Descriptions	June 24	June 29	Start: Task3
9	Semantics of RDF and RDF Schema Vocabularies	July 1	July 6	
10	Data Modelling with OWL LD	July 8	July 13	
11	Combining Query Processing with Entailment	July 15	July 20	Due: Task3
-	Recap Session + Q&A	-	July 27	
-	Exam	-	-	

¹ Pentecost week (Pfingstwoche) is reserved for block lectures (6 – 12 June). Weekly lectures (exercise, plenary session) are cancelled in this week. A lecture video on FAU.tv will be provided.

² Pre-scheduled exercise for Publishing and Consuming Linked Data due to Pentecost week.

Course Organisation

The course will follow the inverted classroom concept, where pre-recorded lectures and exercises precede Plenary Sessions, in which open questions are discussed. Plenary Sessions are hybridly

held in room LG H6 BISSANTZ-Hörsaal³ on Wednesdays 13:15 – 14:45 and in Zoom⁴. Exercises are also held in Zoom on Fridays 13:15 – 14:45. We also offer a Collab room for students with GatherTown⁶ where students can meet and collaborate virtually. The entire course is held in English. Links for Zoom and GatherTown can be found on the StudOn instance. Pre-recorded lectures are hosted on FAU.tv⁷.

In StudOn, we host a forum⁸ where students can ask any open question that might be of interest for other students. Students are encouraged to reply to questions, they can answer. Nonetheless, we will answer all questions.

Exam and Bonus Tasks

The 60min written exam will be in **English**, but may be answered in German. A 0.3/0.4 grade improvement can be achieved by solving all three bonus tasks before their due date. The tasks are sequentially presented in the exercise sessions and uploaded to StudOn, while the due dates can be checked in the table above. Submission deadlines refer always to the week's Sunday 23:59. Bonus tasks are submitted in StudOn.

Contact

If you have any question regarding this lecture or the StudOn instance, **please use the forum⁸ or send an email to wiso-ti-fld@lists.fau.de.**

³ LG H6 BISSANTZ-Hörsaal: http://univis.uni-erlangen.de/formbot/dsc_3Danew_2Froom_view_26rooms_3Drw_2Fserw_2Fwirau_2Fflgh6_26dir_3Drw_2Fserw_2Fwirau_26lang_3Den_26ref_3Droom

⁴ Zoom: <https://fau.zoom.us/j/64329727441?pwd=Nmk2b3pRbVFCZ0VIN0loRVRYNWoxdz09>

⁵ StudOn: https://www.studon.fau.de/crs4347791_join.html

⁶ GatherTown: <https://app.gather.town/app/XPZBx2ERYbLtqPrR/fld-classroom>

⁷ Fau.tv: <https://www.fau.tv/course/id/2956.html>

⁸ Forum: <https://www.studon.fau.de/frm4397304.html>