

# TDT44 - Semantic Web

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## About the course

The students get an orientation of the theoretical, methodological and technological background and of the ongoing standardization work that support semantic Web.

You will gain:

- Background theoretical knowledge
- Insight to relevant problems within Web information resources and services
- Insight to how to use semantic web technology to solve problems in different domains

Mandatory activities: Peer review, project report, final presentation.

Final grade: Project report and final presentation.

## Introduction for Fall 2020

[Introductory presentation](#)

## Schedule

Date	Title
24.09.2020	Introductory meeting
09.10.2020	Deadline for sending the topics for individual assignment
<del>22.10.2020</del> 29.10.2020	Mid-term follow-up meeting - 1 with short presentations from students
05.11.2020	Deadline for submitting the documents for peer feedback
10.11.2020	Deadline for submitting peer reviews/feedback
16.11.2020	Mid-term follow-up meeting - 2 with short presentations from students
23.11.2020	Deadline for sending reports of the individual assignment (by e-mail to Özlem Özgöbek)
26.11.2019	Oral exam <a href="https://www.ntnu.no/studier/emner/TDT4506#tab=omEksamen">https://www.ntnu.no/studier/emner/TDT4506#tab=omEksamen</a>

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## Obligatory Individual Assignment

**You can choose one of the following obligatory assignments:**

**Option 1:**

Write a report (max 10 pages) on a topic of your choice (to be agreed upon with the teacher).

You can choose a topic which will be close to your master thesis topic. You are not allowed to copy text from this report to your thesis or fall report, but you can re-use the ideas and insight you gain.

While deciding on the topic it is recommended to talk to your supervisor.

**Option 2:**

Develop an RDF(S) ontology (or a dictionary) on a chosen topic (to be agreed upon with the teacher) and write a short report (max 5 pages) explaining the details of your work.

Explain every aspect of your ontology. Explain the assumptions underlying your ontological choices.

The ontology should not exceed 30 classes and 30 instances. The modeling language should be Turtle or a similar syntax. You can use any modeling software.

If you choose this task, you may refer to the individual assignments in the previous years in this course.

Mandatory peer feedback:

**Document to submit: (Deadline: 5 November 2020)**

For this task please prepare a 1-2 page document where you explain your obligatory assignment in more detail.

**Peer feedback: (Deadline: 10 November 2020)**

After submitting your document to peergrade, you will be able to see the feedback form. There is an explanation of the task in the system.

More information has been sent by e-mail.

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PAST ASSIGNMENTS

[Obligatory assignment from 2019.](#)

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## About the Exam (2019)

Oral exam will take place on 28 November 2019. This will be the only exam in this course. The schedule for the exam will be announced through the official channels a few days before the exam, it won't be announced on this page.

For the sensors to read your reports before the oral exam, you need to send them a few days before the exam by e-mail to [ozlem.ozgobek@ntnu.no](mailto:ozlem.ozgobek@ntnu.no).

The deadline for sending the reports is **25 November 2019, 07.00 AM**.

### **Presentation Details**

During the oral exam, each student will have **20 minutes**. This includes the presentation of the individual assignment and questions from the sensors. For the presentation you don't need any slides, so **don't prepare any slides**. We will ask you to explain your assignment orally, you can use a **white board** if needed. Please bring a **printed copy** of your report with you. Questions from sensors will include details from your assignment and some basic knowledge from the book.

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## Course Material

### Books:

Semantic Web for the Working Ontologist, Second edition: Effective modeling in RDFS and OWL by Dean Allemang and James Hendler, Morgan Kaufmann, 384 pp. (Available online at NTNU Library)

Exploiting Linked Data and Knowledge Graphs in Large Organisations (Available for free on the NTNU-network: <https://link.springer.com/book/10.1007/978-3-319-45654-6>)

Presentations:

## Presentations from 2019

Topic
<a href="#">RDF</a>
<a href="#">RDFS</a>
<a href="#">OWL</a>

## Presentations from 2018

Title	Slides
Introduction 2018	<a href="#">IntroductionTDT44.pdf</a>

## Presentations from 2017

Title	Slides
Intro	<a href="#">TDT44-Intro.pdf</a>
1: Enterprise Knowledge Graph: An Introduction	<a href="#">Kap 1 og 2</a>
2: Knowledge Graph Foundations	<a href="#">Kap 1 og 2</a>
3: Knowledge Architecture for Organisations	<a href="#">Kap 3</a>
Extra: Turtle	<a href="#">Turtle presentation.pptx</a>
Extra: SPARQL	<a href="#">SPARQL.pdf</a>
4: Construction of Enterprise Knowledge Graphs(I)	<a href="#">Kap 4</a>
5: Construction of Enterprise Knowledge Graphs(II)*	<a href="#">Kap 5</a>
6: Understanding Knowledge Graphs	<a href="#">Kap 6</a>
7: Question Answering and Knowledge Graphs	<a href="#">Kap 7</a>
8: Success Stories	<a href="#">Kap 8</a>
9: Enterprise Knowledge Graph: Looking into the Future	<a href="#">Kap 9</a>

Other Useful Material:

## TDT44 Individual Assignment 2017

- To get more information about the last year's assignment please [click here](#).
- [Example solutions for the assignment of 2017](#).

## Research Papers

You may also read two papers, on Logics and [Turtle](#), and if you are interested:

- [The Unreasonable Effectiveness of Data.pdf](#) is not really about the Semantic Web, but I post it here as a good read for those who like that.
- <https://www.w3.org/TR/owl2-primer/> might be useful when comparing RDF vs. Turtle etc.

## External links

[Part 1](#) and [part 2](#) of this tutorial can be relevant for our class:

- [Horrocks, Ian](#) (2010); [Semtech 2010 tutorial part 1](#) and [part 2](#) on Description Logics and OWL

W3 : [www.w3.org](http://www.w3.org)

OWL: <https://www.w3.org/2001/sw/wiki/OWL>

Schema.org

Friend of a friend ontology: [https://en.wikipedia.org/wiki/FOAF\\_\(ontology\)](https://en.wikipedia.org/wiki/FOAF_(ontology))

Blog post - knowledge graphs: <https://medium.com/@sderymail/challenges-of-knowledge-graph-part-1-d9ffe9e35214>

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## Teachers

Özlem Özgöbek (Teacher), [ozlem.ozgobek](mailto:ozlem.ozgobek@ntnu.no) at [ntnu.no](http://ntnu.no), room [ITV-158](#)  
(Professor Jon Atle Gulla (Examiner), [jag](mailto:jag@ntnu.no) at [ntnu.no](http://ntnu.no), room [ITV-114](#))