

INFO216

Exam Lab

Every word or sentence with underscore
links to a webpage!



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01

EXAM 2024

General Info

You can find information about the exam [here](#)

- 4 hour school exam
- Date: 3. June 2023
- Start time 09:00 or 15:00 check 2 weeks before the exam
 - Currently, the start time is 15:00
- Digital exam (bring your computer)
- No resources available (no notes, books etc.)

Information about exams at UIB is available [here](#)

General Info

Andreas has published some information about the exam [here](#).

Previous year's exam can be found [here](#), and other exams can be found [here](#).

The best way to practice is through doing. So try to complete the previous exams (particularly last year's, 2022 and 2021), **in addition** to the labs. All solutions to the labs can be found [here](#).

NOTE: Some subjects are curriculum this year, where previous years it hasn't been (e.g., SHACL), and vice versa (e.g., Complex OWL)

02

Previous Exams

Exam 2021 - Turtle & SPARQL

The answers to the turtle and SPARQL questions can be found under the following [**discussion thread**](#) (below information about the exam).

Otherwise, the exam has a lot of multiple choice questions, which includes good practice for general knowledge of the course, and questions on vocabularies.

Exam 2022 - Info

Task 1 - General Knowledge

Task 2 - Ontology Building

Task 2a - Ontology Rules

Task 2b - Ontology Individuals

Task 3 - Vocabularies

Task 4 - RDF, RDFS & OWL

Task 4a - RDF, RDFS & Basic OWL

Task 4b - Complex OWL

Task 5 - Reasoning

Task 6 - SPARQL

Task 6a - SPARQL Queries

Task 6b - SPARQL Updates

Task 7 - RDFLIB Understanding

78 tasks in total, **44 multiple choice & 34 programming**

Task 1 – Multiple Choice

- **50 Questions**
- **25% of the Exam Grade**

Task 3 – RDFS & OWL

- **9 Questions**
- **15% of the Exam Grade**

Task 2 – RDF & SHACL

- **10 Questions**
- **15% of the Exam Grade**

Task 4 – SPARQL

- **10 Questions**
- **20% of the Exam Grade**

Task 5 – Python Programming

- **5 Questions**
- **25% of the Exam Grade**



Exam 2023 - Info

84 Questions Total, 50 Multiple Choice, 34 Programming

The solutions to the 2022 & 2023 exams can
be found under the [exams tab](#)

03

SPARQL

SPARQL Queries

```
PREFIX ns1: <http://example.org#>

SELECT ?invs (COUNT(?invs) as ?count)
WHERE {
    ?s ns1:investigation ?invs;
        ns1:outcome ns1:indictment .
}

GROUP BY ?invs
HAVING(?count > 1)
ORDER BY DESC(?count)
```

Example of SELECT query

Question: What's the difference between ?s and ns1:indictment

SELECT: returns table

ASK: returns yes/no

DESCRIBE: returns a graph

CONSTRUCT: returns a graph

SPARQL Updates

INSERT DATA

DELETE DATA

INSERT WHERE

DELETE WHERE

DELETE INSERT WHERE:

```
DELETE {?paper dct:contributor kg:auth_456}
```

```
INSERT {?paper dct:contributor kg:auth_654}
```

```
WHERE {?paper dct:contributor kg:auth_456}
```

SPARQL Extras

```
SELECT DISTINCT (SUM(?lore) as ?age) WHERE{
    #Triples
    FILTER {?age >= "18"^^xsd:integer}
    BIND (year(?age) as ?por)
    OPTIONAL {}
    {} UNION {}
    :subject (:property / rdf:rest* /rdf:first) ?object .
}
GROUP BY ?age
HAVING (?age > 5)
ORDER BY DESC ?age
LIMIT 2
```

This is not a definitive list! These are just some examples, there are plenty more. For example, instead of **SUM** you could have **COUNT**, **AVG**, **MIN** and/or **MAX**.

SPARQL Resources

Documentation

- [Lecture Notes](#)
- [Query Documentation](#)
- [Update Documentation](#)
- [Property Path](#)
- [Expressions and Functions](#)
- [RDFLIB SPARQL](#)
- [Readings list for Lecture 3](#)

Tasks

- [Lab 3 \(SPARQL Query\)](#)
- [Lab 4 \(SPARQL Update\)](#)
- [Lab 5 \(SPARQL Programming\)](#)
- [Lab 6 \(Wikidata in RDF\)](#)

04

XSD, RDF, RDFS, SHACL & OWL

XSD (Datatypes)

**xsd:string, xsd:boolean, xsd:decimal, xsd:integer, xsd:float,
xsd:double, xsd:dateTime, xsd:dateTimeStamp, xsd:time,
xsd:date, xsd:gYearMonth, xsd:gYear, xsd:gMonthDay, xsd:gDay,
xsd:gMonth, xsd:duration, xsd:yearMonthDuration,
xsd:dayTimeDuration, xsd:hexBinary, xsd:base64Binary,
xsd:anyURI, xsd:normalizedString, xsd:token, xsd:language,
xsd:NMTOKEN, xsd:Name, xsd:NCName, xsd:positiveInteger,
xsd:nonPositiveInteger, xsd:negativeInteger, xsd:long, xsd:int,
xsd:short, xsd:byte, xsd:nonNegativeInteger, xsd:unsignedLong,
xsd:unsignedInt, xsd:unsignedShort, xsd:unsignedByte,
xsd:minInclusive, xsd:maxInclusive**

NOTE: There are more than the ones listed, this is not a definitive list of what to remember and not to remember, just an overview of some of the ones used!

RDF & RDFS

RDF:

RDF.type

RDFS:

RDFS.subClassOf, RDFS.subPropertyOf,
RDFS.domain, RDFS.range

RDFS.label, RDFS.comment, RDFS.seeAlso,
RDFS.isDefinedBy, RDFS.Datatype

NOTE: There are more than the ones listed, this is not a definitive list of what to remember and not to remember, just an overview of some of the ones used!



SHACL

General Concepts

- sh:NodeShape
- sh:targetClass
- sh:property
- sh:path

Others

- sh:class
- sh:minCount
- sh:maxCount
- sh:datatype
- sh:or
- sh:and
- sh:hasValue
- sh:value
- sh:pattern
- sh:in
- sh:nodeKind

Check [**table 5.3**](#) under **5.6.3 Constraint Components** in the documentation for more core concepts of SHACL

NOTE: There are more than the ones listed, this is not a definitive list of what to remember and not to remember, just a short overview of some of the concepts used

Basic OWL

(sameAs, differentFrom, AllDifferent,
equivalentClass, disjointWith, AllDisjointWith,
equivalentProperty, propertyDisjointWith,
AllDisjointProperties, inverseOf)

(SymmetricProperty, AsymmetricProperty,
ReflexiveProperty, IrreflexiveProperty,
TransitiveProperty, FunctionalProperty,
InverseFunctionalProperty, propertyChainAxiom)

NOTE: There are
more than the ones
listed, this is not a
definitive list of what
to remember and not
to remember, just an
overview of some of
the ones used!

Resources

RDF & RDFS

Documentation

- [Lecture 1 Notes](#)
- [Lecture 2 Notes](#)
- [Reading list lecture 1, 2 & 8](#)
- Many more, check reading list & useful materials

Tasks:

- [Lab 1 - Intro to RDF](#)
- [Lab 2 - More RDF](#)
- [Lab 7 - CSV to RDF](#)
- [Lab 10 - RDFS](#)

OWL

Documentation

- [Lecture 9 Notes](#)
- [Reading list for Basic OWL](#)

Tasks:

- [Lab 11 - OWL I](#)
- [Lab 12 - OWL II \(Protégé\)](#)

SHACL

Documentation

- [Lecture 8 Notes](#)
- [SHACL Documentation](#)
- [SHACL Playground](#)
- [pySHACL](#)

Tasks:

- [Lab 9 - SHACL](#)

05

Miscellaneous

Lab Presentations & Examples

Lab presentations for labs can be found [here](#).

Additionally, any examples I've shown during the labs that have not been released on the wiki, can be found [here](#)

The INFO216 folder on GitHub can be found [here](#)



Old Labs

You can find old labs in the course by checking the history tab in the labs section. However, most of the new labs you have gone through are more relevant and better than the old ones.

Lab Exercises

[Page](#) [Discussion](#)

[Read](#) [Edit](#) [Edit source](#) [View history](#)  [More ▾](#)

Here we will present new lab exercises each week. *The two last exercises may be updated.*

1. Lab: Getting started with VSCode, Python and RDFlib (week 4, from 22/1)
2. Lab: RDF programming with RDFLib (week 5, from 29/1)

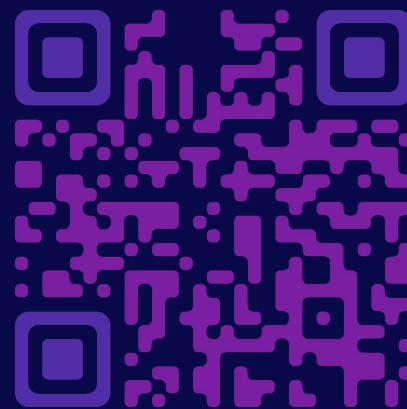


Evaluation of INFO216



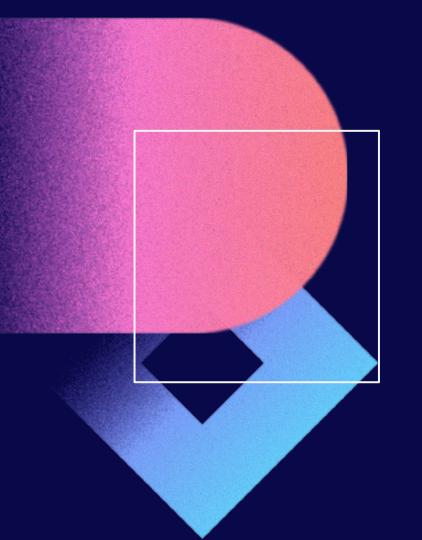
<https://forms.gle/KVUq9gBW5NtLBUMw5>

Specific survey about
INFO216 (**My Survey**)



<https://skjemaker.app.uib.no/view.php?id=171001>

Overall satisfaction
around course, labs,
lectures etc. (**UIB's**)
²⁷



GOOD LUCK!



If you have any questions feel free to send us a
message on **MittUIB**
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