

# ONTOLOGY DESIGN (2020 Summer at UT AUSTIN iSCHOOL)

**SAM OH**, PROFESSOR, SUNGKYUNKWAN UNIVERSITY LIS AND DATA SCIENCE, SEOUL, KOREA  
SPECIAL AMBASSADOR, GLOBAL iSCHOOLS

## INSTRUCTOR BIO

Sam Oh is a **PROFESSOR** at **SUNGKYUNKWAN UNIVERSITY** (SKKU, established in 1398) in Seoul, Korea and an **AFFILIATE PROFESSOR** at **UNIVERSITY of WASHINGTON (UW) iSCHOOL**. Prior to joining SKKU, he taught at the UW iSchool for 4 years. **HIS EXPERTISE** includes **DATA MODELING, METADATA and ONTOLOGY DESIGN, DATA ANALYTICS, and KNOWLEDGE MANAGEMENT**. He has consulted many companies and government sectors in Korea. He is a **PAST CHAIR of GLOBAL iSCHOOLS** (2018.3-2020.2) and a **CURRENT CHAIR of DCMI GOVERNING BOARD**. He also chaired both TC46/SC9 (Identification & Description) and ISO/IEC JTC1 SC34 (Document Description and Processing Languages). He **TAUGHT CLASSES** at the iSchools such as **SYRACUSE, PITTSBURGH, UT AUSTIN, and UNC at CHAPEL HILL**.

## COURSE DESCRIPTION

The first part of this course covers essential knowledge needed to **CREATE SOUND and INTEROPERABLE METADATA SCHEMAS AND THEIR APPLICATION PROFILES (APs)**, which provide the bases for metadata interoperability. Designing metadata schemas and their APs will be done using XML Editors. Its focus will be on how to achieve syntactic interoperability among diverse metadata. The second part of the course will be focused on providing students with in-depth knowledge of how to **DESIGN AND IMPLEMENT SOUND ONTOLOGIES for SEMANTIC SYSTEMS**. Particular attention will be given to **SMART USE of ONTOLOGY LANGUAGES SUCH AS RDF/OWL (W3C STANDARD) and TOPIC MAPS (ISO STANDARD)**. In a summary, this course will be focused on designing and implementing interoperable metadata and ontology schemas using XML and Ontology Editors. However, it will not deal with developing interfaces of those systems, so programming skills are not required for this class.

## COURSE OBJECTIVES

The purpose of this course is to provide students with conceptual and technical knowledge needed in designing interoperable metadata and ontology schemas. The specific objectives of this course are as follows:

- Students will acquire understanding of major **STANDARD METADATA SCHEMES** available (**DC, MODS, VRA, MIX, textMD, PREMIS, and METS**)
- Students will be able to use an XML Editor to design and implement complex metadata schemas and their APs.
- Students will learn how to package diverse metadata using METS.
- Students will learn **ONTOLOGY LANGUAGES** such as **Topic Maps (ISO 13250)** and **RDF/OWL (W3C Recommendation)**
- Students will be able to design sound ontologies using Topic Maps.
- Students will be able to design sound ontologies using RDF/OWL.
- Students will acquire competent understanding of the **ONTOLOGY DESIGN METHODOLOGY**.

## TEACHING METHODS

- ALL THE CLASSES WILL BE RUN AS **FLIPPED CLASSES**, WHICH MEANS THAT ALL THE LECTURES WILL BE PRE-RECORDED AND STUDENTS ARE EXPECTED TO LISTEN TO THEM BEFORE COMING TO THE CLASS. WE WILL USE THE CLASS TIME TO ANSWER QUESTIONS REGARDING THE RECORDED LECTURES AND LEARN HOW TO SOLVE PROBLEMS BY DESIGNING METADATA AND ONTOLOGY SCHEMAS TOGETHER.
- THE **CYBER OFFICE HOUR** WILL BE HELD **DAILY** SINCE THIS IS AN INTENSE CLASS. THIS SESSION IS ONLY FOR THOSE WHO HAVE QUESTIONS AND NEED HELP. ATTENDANCE TO THIS SESSION IS OPTIONAL.

## GRADING:

- PROJECT 1: Designing a **DUBLIN CORE APPLICATION PROFILE** (10%)
- PROJECT 2: Designing a **MODS APPLICATION PROFILE** (10%)
- PROJECT 3: Designing a **VRA APPLICATION PROFILE** (10%)
- PROJECT 4: Designing a **METS APPLICATION PROFILE** (20%)
- PROJECT 5: Designing a **TOPIC MAPS ONTOLOGY 1** (5%)
- PROJECT 6: Designing a **TOPIC MAPS ONTOLOGY 2** (20%)
- PROJECT 7: Designing an **RDF and OWL ONTOLOGY 1** (5%)
- PROJECT 8: Designing an **RDF and OWL ONTOLOGY 2** (20%)

# PROPOSED SCHEDULE: WEEK 1

LIVE CLASS TIME: M.W.F 6:00 PM – 8:30 PM CST | CYBER OFFICE HOUR: T.Th.Su 6:00 – 7:00 PM CST

LEGENDS (**U**: UNIT, **LC**: LIVE CLASS, **PR**: PRE-RECORDED, **SP**: STUDENT PRESENTATION)

UNIT/DATE	TOPICS TO LEARN	PROJECT AND PRE-RECORDING DUES
<b>UNIT 1</b> 7/13(Mon) 6:00-8:30 PM	<ul style="list-style-type: none"> <li>• <b>TOPICS</b> <ul style="list-style-type: none"> <li>○ Providing the COURSE OVERVIEW</li> <li>○ Understanding METADATA BASICS and XML SCHEMA</li> </ul> </li> <li>• <b>LIVE CLASS</b> <ul style="list-style-type: none"> <li>○ LECTURE on <b>METADATA BASICS</b></li> <li>○ LECTURE on <b>XML SCHEMA I</b></li> </ul> </li> </ul>	<b>READING 1</b>  <b>LIVE CLASS ON METADATA BASICS AND XML I</b> [U1.LC-METABASICSXML]
<b>OFFICE HOUR</b> 7/14(Tue) 6:00-7:00 PM	<ul style="list-style-type: none"> <li>• <b>LIVE OFFICE HOUR</b> <ul style="list-style-type: none"> <li>○ ANY STUDENT WHO has a QUESTION REGARDING the LECTURES or PROJECTS is WELCOME.</li> <li>○ 1:1 APPOINTMENT is also AVAILABLE.</li> <li>○ ATTENDANCE to this SESSION is OPTIONAL.</li> </ul> </li> </ul>	DR. OH'S PRE-RECORDING ON <b>XML AND DC</b> [U1.PR-XMLDC] DUE: 7/14 6:00 PM
<b>UNIT 2</b> 7/15(Wed) 6:00-8:30 PM	<ul style="list-style-type: none"> <li>• <b>TOPICS</b> <ul style="list-style-type: none"> <li>○ Understanding SIMPLE DUBLIN CORE (DC) and QUALIFIED-DC</li> </ul> </li> <li>• <b>LIVE CLASS</b> <ul style="list-style-type: none"> <li>○ Q/A on the <b>PRE-RECORDINGS of XML and DUBLIN CORE</b></li> <li>○ LECTURE on IMPLEMENTING a <b>DC SCHEMA</b></li> <li>○ LECTURE on IMPLEMENTING a <b>DC-APPLICATION PROFILE</b></li> </ul> </li> </ul>	<b>READING 2</b>  <b>LIVE CLASS on XML2 AND DUBLIN CORE</b> [U2.LC-XMLDC]
<b>OFFICE HOUR</b> 7/16(Thu) 6:00-7:00 PM	<ul style="list-style-type: none"> <li>• <b>LIVE OFFICE HOUR</b> <ul style="list-style-type: none"> <li>○ ANY STUDENT WHO has a QUESTION REGARDING the LECTURES or PROJECTS is WELCOME.</li> <li>○ 1:1 APPOINTMENT is also AVAILABLE.</li> <li>○ ATTENDANCE to this SESSION is OPTIONAL.</li> </ul> </li> </ul>	STUDENT PRE-RECORDING on <b>MODS</b> [U3.PR-SP.MODS] DUE: 7/16 6:00 PM
<b>UNIT 3</b> 7/17(Fri) 6:00-8:30 PM	<ul style="list-style-type: none"> <li>• <b>TOPICS</b> <ul style="list-style-type: none"> <li>○ Understanding METADATA OBJECT DESCRIPTION SCHEMAS (MODS)</li> </ul> </li> <li>• <b>LIVE CLASS</b> <ul style="list-style-type: none"> <li>○ Q/A on the <b>PRE-RECORDING of MODS</b></li> <li>○ LECTURE on IMPLEMENTING a <b>MODS SCHEMA</b></li> <li>○ LECTURE on IMPLEMENTING a <b>MODS-AP</b></li> </ul> </li> </ul>	<b>READING 3</b>  <b>LIVE CLASS on MODS</b> [U3.LC-MODS]
<b>7/18(SAT)</b>		
<b>OFFICE HOUR</b> 7/19(Sun) 6:00-7:00 PM	<ul style="list-style-type: none"> <li>• <b>LIVE OFFICE HOUR</b> <ul style="list-style-type: none"> <li>○ ANY STUDENT WHO has a QUESTION REGARDING the LECTURES or PROJECTS is WELCOME.</li> <li>○ 1:1 APPOINTMENT is also AVAILABLE.</li> <li>○ ATTENDANCE to this SESSION is OPTIONAL.</li> </ul> </li> </ul>	STUDENT PRE-RECORDING on <b>VRA</b> [U4.PR-SP.VRA] DUE: 7/19 6:00 PM

## PROPOSED SCHEDULE: WEEK 2

LIVE CLASS TIME: M.W.F 6:00 PM – 8:30 PM CST | CYBER OFFICE HOUR: T.Th.Su 6:00 – 7:00 PM CST

LEGENDS (U: UNIT, LC: LIVE CLASS, PR: PRE-RECORDED, SP: STUDENT PRESENTATION)

<p><b>UNIT 4</b> 7/20(Mon) 6:00-8:30 PM</p>	<ul style="list-style-type: none"> <li>• <b>TOPICS</b> <ul style="list-style-type: none"> <li>○ Understanding VISUAL RESOURCE ASSOCIATION (<b>VRA</b>)</li> </ul> </li> <li>• <b>LIVE CLASS</b> <ul style="list-style-type: none"> <li>○ Q/A on the <b>PRE-RECORDINGS OF VRA</b></li> <li>○ LECTURE on IMPLEMENTING a <b>VRA SCHEMA</b></li> <li>○ LECTURE on IMPLEMENTING a <b>VRA-AP</b></li> </ul> </li> </ul>	<p><b>READING 4</b></p> <p><b>LIVE CLASS ON VRA</b> [U4.LC-VRA]</p> <p><b>PROJECT 1:</b> STUDENT PRESENTATION ON <b>DC-AP</b> AND ITS FILES Due: 7/20 6:00 PM</p>
<p><b>OFFICE HOUR</b> 7/21(Tue) 6:00-7:00 PM</p>	<ul style="list-style-type: none"> <li>• <b>LIVE OFFICE HOUR</b> <ul style="list-style-type: none"> <li>○ ANY STUDENT WHO has a QUESTION REGARDING the LECTURES or PROJECTS is WELCOME.</li> <li>○ I:I APPOINTMENT is also AVAILABLE.</li> <li>○ ATTENDANCE to this SESSION is OPTIONAL.</li> </ul> </li> </ul>	<p>STUDENT PRE-RECORDINGS on <b>TEXTMD</b> [U5.PR-SP.TEXTMD] on <b>MIX</b> [U5.PR-SP.MIX] on <b>PREMIS</b> [U5.PR-SP.PREMIS] Due: 7/21 6:00 PM</p>
<p><b>UNIT 5</b> 7/22(Wed) 6:00-8:30 PM</p>	<ul style="list-style-type: none"> <li>• <b>TOPICS</b> <ul style="list-style-type: none"> <li>○ Understanding <b>TextMD, MIX and PREMIS</b></li> </ul> </li> <li>• <b>LIVE CLASS</b> <ul style="list-style-type: none"> <li>○ Q/A on the <b>PRE-RECORDINGS of TextMD, MIX and PREMIS</b></li> <li>○ LECTURE on IMPLEMENTING <b>PREMIS</b> with OTHER METADATA</li> </ul> </li> </ul>	<p><b>READING 5,6,7</b></p> <p><b>LIVE CLASS on PREMIS</b> [U5.LC-PREMIS]</p>
<p><b>OFFICE HOUR</b> 7/23(Thu) 6:00-7:00 PM</p>	<ul style="list-style-type: none"> <li>• <b>LIVE OFFICE HOUR</b> <ul style="list-style-type: none"> <li>○ ANY STUDENT WHO has a QUESTION REGARDING the LECTURES or PROJECTS is WELCOME.</li> <li>○ I:I APPOINTMENT is also AVAILABLE.</li> <li>○ ATTENDANCE to this SESSION is OPTIONAL.</li> </ul> </li> </ul>	<p>DR. OH'S PRE-RECORDING on <b>METS</b> [U6.PR-METS] DUE: 7/23 6:00 PM</p>
<p><b>UNIT 6</b> 7/24(Fri) 6:00-8:30 PM</p>	<ul style="list-style-type: none"> <li>• <b>TOPICS</b> <ul style="list-style-type: none"> <li>○ Understanding METADATA ENCODING and TRANSMISSION SCHEMAS (<b>METS</b>)</li> </ul> </li> <li>• <b>LIVE CLASS</b> <ul style="list-style-type: none"> <li>○ Q/A on the <b>PRE-RECORDING of METS</b></li> <li>○ LECTURE on HOW TO USE <b>METS</b> with OTHER DESCRIPTIVE and ADMINISTRATIVE METADATA</li> <li>○ LECTURE on IMPLEMENTING a <b>METS-AP</b></li> </ul> </li> </ul>	<p><b>READING 8</b></p> <p><b>LIVE CLASS on METS</b> [U6.LC-METS]</p> <p><b>PROJECT 2:</b> STUDENT PRESENTATION ON <b>MODS-AP</b> AND ITS FILES Due: 7/24 6:00 PM</p>
<p><b>7/25(SAT)</b></p>		
<p><b>OFFICE HOUR</b> 7/26(Sun) 6:00-7:00 PM</p>	<ul style="list-style-type: none"> <li>• <b>LIVE OFFICE HOUR</b> <ul style="list-style-type: none"> <li>○ ANY STUDENT WHO has a QUESTION REGARDING the LECTURES or PROJECTS is WELCOME.</li> <li>○ I:I APPOINTMENT is also AVAILABLE.</li> <li>○ ATTENDANCE to this SESSION is OPTIONAL.</li> </ul> </li> </ul>	<p>DR. OH'S PRE-RECORDING ON <b>TOPIC MAPS</b> [U7.PR-TOPICMAPS] DUE: 7/26 6:00 PM</p>

## PROPOSED SCHEDULE: WEEK 3

LIVE CLASS TIME: M.W.F 6:00 PM – 8:30 PM CST | CYBER OFFICE HOUR: T.Th.Su 6:00 – 7:00 PM CST

LEGENDS (U: UNIT, LC: LIVE CLASS, PR: PRE-RECORDED, SP: STUDENT PRESENTATION)

<p><b>UNIT 7</b> 7/27(Mon) 6:00-8:30 PM</p>	<ul style="list-style-type: none"> <li>• <b>TOPICS</b> <ul style="list-style-type: none"> <li>○ Understanding TOPIC MAPS (ISO Standard Ontology Language)</li> </ul> </li> <li>• <b>LIVE CLASS</b> <ul style="list-style-type: none"> <li>○ Q/A on the <b>PRE-RECORDING</b> of <b>TOPIC MAPS</b></li> <li>○ MODELING THE FIRST TOPIC MAPS ONTOLOGY TOGETHER</li> </ul> </li> </ul>	<p><b>READING 9</b> <b>LIVE CLASS ON TOPIC MAPS</b> [U7.LC-TOPICMAPS]  <b>PROJECT 3:</b> STUDENT PRESENTATION ON <b>VRA-AP</b> AND ITS FILES Due: 7/27 6:00 PM</p>
<p><b>OFFICE HOUR</b> 7/28(Tue) 6:00-7:00 PM</p>	<ul style="list-style-type: none"> <li>• <b>LIVE OFFICE HOUR</b> <ul style="list-style-type: none"> <li>○ ANY STUDENT WHO <i>has a QUESTION REGARDING the LECTURES or PROJECTS is WELCOME.</i></li> <li>○ 1:1 APPOINTMENT <i>is also AVAILABLE.</i></li> <li>○ ATTENDANCE to <i>this SESSION is OPTIONAL.</i></li> </ul> </li> </ul>	<p>DR. OH'S PRE-RECORDING ON <b>TOPIC MAPS MODELING</b> [U8.PR-TOPICMAPSMODELING] Due: 7/28 6:00 PM</p>
<p><b>UNIT 8</b> 7/29(Wed) 6:00-8:30 PM</p>	<ul style="list-style-type: none"> <li>• <b>TOPICS</b> <ul style="list-style-type: none"> <li>○ Understanding <b>TM ONTOLOGY MODELING METHODOLOGY 1</b></li> </ul> </li> <li>• <b>LIVE CLASS</b> <ul style="list-style-type: none"> <li>○ Q/A on the <b>PRE-RECORDING</b> of <b>TOPIC MAPS Modeling</b></li> <li>○ MODELING <i>and</i> IMPLEMENTING TOPIC MAPS ONTOLOGIES</li> </ul> </li> </ul>	<p><b>LIVE CLASS ON TOPIC MAPS MODELING I</b> [U8.LC-TOPICMAPSMODELING1]</p>
<p><b>OFFICE HOUR</b> 7/30(Thu) 6:00-7:00 PM</p>	<ul style="list-style-type: none"> <li>• <b>LIVE OFFICE HOUR</b> <ul style="list-style-type: none"> <li>○ ANY STUDENT WHO <i>has a QUESTION REGARDING the LECTURES or PROJECTS is WELCOME.</i></li> <li>○ 1:1 APPOINTMENT <i>is also AVAILABLE.</i></li> <li>○ ATTENDANCE to <i>this SESSION is OPTIONAL.</i></li> </ul> </li> </ul>	
<p><b>UNIT 9</b> 7/31(Fri) 6:00-8:30 PM</p>	<ul style="list-style-type: none"> <li>• <b>TOPICS</b> <ul style="list-style-type: none"> <li>○ Understanding <b>TM ONTOLOGY MODELING METHODOLOGY 2</b></li> </ul> </li> <li>• <b>LIVE CLASS</b> <ul style="list-style-type: none"> <li>○ FURTHER MODELING <i>and</i> IMPLEMENTING TOPIC MAPS ONTOLOGIES</li> </ul> </li> </ul>	<p><b>LIVE CLASS ON TOPIC MAPS MODELING 2</b> [U7.LC-TOPICMAPSMODELING2]  <b>PROJECT 4:</b> STUDENT PRESENTATION ON <b>METS-AP</b> AND ITS FILES Due: 7/31 6:00 PM</p>
<p><b>8/1(SAT)</b></p>		
<p><b>OFFICE HOUR</b> 8/2(Sun) 6:00-7:00 PM</p>	<ul style="list-style-type: none"> <li>• <b>LIVE OFFICE HOUR</b> <ul style="list-style-type: none"> <li>○ ANY STUDENT WHO <i>has a QUESTION REGARDING the LECTURES or PROJECTS is WELCOME.</i></li> <li>○ 1:1 APPOINTMENT <i>is also AVAILABLE.</i></li> <li>○ ATTENDANCE to <i>this SESSION is OPTIONAL.</i></li> </ul> </li> </ul>	<p>DR. OH'S PRE-RECORDING ON <b>RDF/OWL</b> [U10.PR-RDFOWL] Due: 8/2 6:00 PM</p>

## PROPOSED SCHEDULE: WEEK 4

LIVE CLASS TIME: M.W.F 6:00 PM – 8:30 PM CST | CYBER OFFICE HOUR: T.Th.Su 6:00 – 7:00 PM CST

LEGENDS (U: UNIT, LC: LIVE CLASS, PR: PRE-RECORDED, SP: STUDENT PRESENTATION)

<p><b>UNIT 10</b> 8/3(Mon) 6:00-8:30 PM</p>	<ul style="list-style-type: none"> <li>• <b>TOPICS</b> <ul style="list-style-type: none"> <li>○ Understanding <b>RDF/OWL</b> ONTOLOGY LANGUAGE</li> </ul> </li> <li>• <b>LIVE CLASS</b> <ul style="list-style-type: none"> <li>○ Q/A on the <b>PRE-RECORDING</b></li> <li>○ MODELING and IMPLEMENTING RDF/OWL ONTOLOGIES</li> </ul> </li> </ul>	<p><b>READING 10</b></p> <p><b>LIVE CLASS</b> ON <b>RDF/OWL</b> [U10.LC-RDFOWL]</p> <p><b>PROJECT 5:</b> SUBMITTING <b>Topic Maps Project 1</b> FILE ONLY Due: 8/3 6:00 PM</p>
<p><b>OFFICE HOUR</b> 8/4(Tue) 6:00-7:00 PM</p>	<ul style="list-style-type: none"> <li>• <b>LIVE OFFICE HOUR</b> <ul style="list-style-type: none"> <li>○ ANY STUDENT WHO has a QUESTION REGARDING the LECTURES or PROJECTS is WELCOME.</li> <li>○ 1:1 APPOINTMENT is also AVAILABLE.</li> <li>○ ATTENDANCE to this SESSION is OPTIONAL.</li> </ul> </li> </ul>	<p>DR. OH'S PRE-RECORDING ON <b>RDF/OWL MODELING</b> [U11.PR-RDFOWLMODELING] Due: 8/2 6:00 PM</p>
<p><b>UNIT 11</b> 8/5(Wed) 6:00-8:30 PM</p>	<ul style="list-style-type: none"> <li>• <b>TOPICS</b> <ul style="list-style-type: none"> <li>○ Understanding <b>RDF/OWL</b> ONTOLOGY MODELING METHODOLOGY I</li> </ul> </li> <li>• <b>LIVE CLASS</b> <ul style="list-style-type: none"> <li>○ Q/A on the <b>PRE-RECORDING</b></li> <li>○ MODELING and IMPLEMENTING RDF/OWL ONTOLOGIES</li> </ul> </li> </ul>	<p><b>LIVE CLASS</b> ON <b>RDF/OWL MODELING 1</b> [U11.LC-RDFOWLMODELING]</p>
<p><b>OFFICE HOUR</b> 8/6(Thu) 6:00-7:00 PM</p>	<ul style="list-style-type: none"> <li>• <b>LIVE OFFICE HOUR</b> <ul style="list-style-type: none"> <li>○ ANY STUDENT WHO has a QUESTION REGARDING the LECTURES or PROJECTS is WELCOME.</li> <li>○ 1:1 APPOINTMENT is also AVAILABLE.</li> <li>○ ATTENDANCE to this SESSION is OPTIONAL.</li> </ul> </li> </ul>	<p>Due: 7/31 6:00 PM</p>
<p><b>UNIT 12</b> 8/7(Fri) 6:00-8:30 PM</p>	<ul style="list-style-type: none"> <li>• <b>TOPICS</b> <ul style="list-style-type: none"> <li>○ Implementing <b>RDF/OWL</b> ONTOLOGIES</li> </ul> </li> <li>• <b>LIVE CLASS</b> <ul style="list-style-type: none"> <li>○ Q/A on the <b>PRE-RECORDING</b></li> <li>○ FURTHER MODELING and IMPLEMENTING RDF/OWL ONTOLOGIES</li> </ul> </li> </ul>	<p><b>LIVE CLASS</b> ON <b>RDF/OWL MODELING 2</b> [U12.LC-RDFOWLMODELING2]</p> <p><b>PROJECT 6:</b> STUDENT PRESENTATION ON <b>TM Project 2</b> AND ITS FILES Due: 8/7 6:00 PM</p>
<p><b>8/8(SAT)</b></p>		
<p><b>OFFICE HOUR</b> 8/9(Sun) 6:00-7:00 PM</p>	<ul style="list-style-type: none"> <li>• <b>LIVE OFFICE HOUR</b> <ul style="list-style-type: none"> <li>○ ANY STUDENT WHO has a QUESTION REGARDING the LECTURES or PROJECTS is WELCOME.</li> <li>○ 1:1 APPOINTMENT is also AVAILABLE.</li> <li>○ ATTENDANCE to this SESSION is OPTIONAL.</li> </ul> </li> </ul>	

## PROPOSED SCHEDULE: WEEK 5

LIVE CLASS TIME: M.W.F 6:00 PM – 8:30 PM CST | CYBER OFFICE HOUR: T.Th.Su 6:00 – 7:00 PM CST

LEGENDS (U: UNIT, LC: LIVE CLASS, PR: PRE-RECORDED, SP: STUDENT PRESENTATION)

<p><b>UNIT 13</b> 8/10(Mon) 6:00-8:30 PM</p>	<ul style="list-style-type: none"> <li>• <b>TOPICS</b> <ul style="list-style-type: none"> <li>○ SEMANTIC WEB and NOTABLE METADATA LANGUAGES</li> </ul> </li> <li>• <b>LIVE CLASS</b> <ul style="list-style-type: none"> <li>○ SEMANTIC WEB and LINKED DATA (Karen Coyle)</li> <li>○ <b>BRIEF OVERVIEW of NOTABLE METADATA LANGUAGES</b> <ul style="list-style-type: none"> <li>➢ SCHEMA.ORG and SIMPLE KNOWLEDGE ORGANIZATION SYSTEM (SKOS)</li> <li>➢ FRIEND of FRIEND (FOAF) and Online Information Exchange (ONIX)</li> <li>➢ Exchangeable Image File Format (Exif)</li> <li>➢ BIBLIOGRAPHIC FRAMEWORK IMITATIVE (BIBFRAME)</li> <li>➢ CIDOC Conceptual Reference Model (CIDOC CRM)</li> <li>➢ Categories of the Description of Works of Arts (CDWA)</li> <li>➢ Encoded Archival Description (EAD) and Data Documentation Initiative (DDI)</li> <li>➢ TEXT ENCODING INITIATIVE (TEI) and Music Encoding Initiative (MEI)</li> </ul> </li> </ul> </li> </ul>	<p><b>PROJECT 7:</b> SUBMITTING <b>RDF/OWL PROJECT 1</b> FILE ONLY Due: 8/10 6:00 PM</p>
<p><b>OFFICE HOUR</b> 8/11(Tue) 6:00-7:00 PM</p>	<ul style="list-style-type: none"> <li>• <b>LIVE OFFICE HOUR</b> <ul style="list-style-type: none"> <li>○ ANY STUDENT WHO has a QUESTION REGARDING the LECTURES or PROJECTS is WELCOME.</li> <li>○ 1:1 APPOINTMENT is also AVAILABLE.</li> <li>○ ATTENDANCE to this SESSION is OPTIONAL.</li> </ul> </li> </ul>	
<p><b>UNIT 14</b> 8/12(Wed) 6:00-8:30 PM</p>	<ul style="list-style-type: none"> <li>• <b>TOPICS</b> <ul style="list-style-type: none"> <li>○ 2020 IT TRENDS</li> </ul> </li> <li>• <b>LIVE CLASS</b> <ul style="list-style-type: none"> <li>○ ICT PARADIGM CHANGES</li> <li>○ KEY FUTURE EMERGING TECHNOLOGY</li> <li>○ OPEN SOURCE INNOVATIONS</li> <li>○ ICT STANDARD INNOVATIONS</li> <li>○ FUTURE CONSIDERATIONS</li> </ul> </li> </ul>	
<p><b>OFFICE HOUR</b> 8/13(Thu) 6:00-7:00 PM</p>	<ul style="list-style-type: none"> <li>• <b>LIVE OFFICE HOUR</b> <ul style="list-style-type: none"> <li>○ ANY STUDENT WHO has a QUESTION REGARDING the LECTURES or PROJECTS is WELCOME.</li> <li>○ 1:1 APPOINTMENT is also AVAILABLE.</li> <li>○ ATTENDANCE to this SESSION is OPTIONAL.</li> </ul> </li> </ul>	
<p><b>UNIT 15</b> 8/14(Fri) 6:00-8:30 PM</p>	<ul style="list-style-type: none"> <li>• <b>TOPICS</b> <ul style="list-style-type: none"> <li>○ BIG DATA AND DATA SCIENCE</li> </ul> </li> <li>• <b>LIVE CLASS</b> <ul style="list-style-type: none"> <li>○ WHY BIG DATA?</li> <li>○ Characteristics of Big Data</li> <li>○ USE CASES of BIG DATA</li> <li>○ TYPES and PROCESSES of DATA ANALYTICS</li> <li>○ LIFECYCLES of DATA ANALYTICS</li> <li>○ CORE TECHNOLOGY for BIG DATA ANALYTICS</li> <li>○ WHAT is DATA SCIENCE?</li> <li>○ WHAT is AN ISCHOOL APPROACH to DATA SCIENCE?</li> <li>○ ISCHOOLS' ROLE to OTHER DISCIPLINES</li> </ul> </li> </ul>	
<p><b>8/15(SAT)</b></p>		
<p><b>OFFICE HOUR</b> 8/16(Sun) 6:00-7:00 PM</p>	<ul style="list-style-type: none"> <li>• <b>LIVE OFFICE HOUR</b> <ul style="list-style-type: none"> <li>○ ANY STUDENT WHO has a QUESTION REGARDING the LECTURES or PROJECTS is WELCOME.</li> <li>○ 1:1 APPOINTMENT is also AVAILABLE.</li> <li>○ ATTENDANCE to this SESSION is OPTIONAL.</li> </ul> </li> </ul>	<p><b>PROJECT 8:</b> STUDENT PRESENTATION ON <b>RDF/OWL PROJECT 2</b> AND ITS FILES Due: 8/16 11:00 PM</p>

# READINGS

## **1. METADATA BASICS AND XML**

- Intro to XML Schema: [https://www.w3schools.com/xml/schema\\_intro.asp](https://www.w3schools.com/xml/schema_intro.asp)
- Understanding Metadata: [https://groups.niso.org/apps/group\\_public/download.php/17446/Understanding%20Metadata.pdf](https://groups.niso.org/apps/group_public/download.php/17446/Understanding%20Metadata.pdf)

## **2. DC (DUBLIN CORE)**

- Dublin Core Terms: <http://www.dublincore.org/specifications/dublin-core/dcmi-terms/>
- Dublin Core Terms: <http://www.dublincore.org/specifications/dublin-core/dcmi-namespace/>

## **3. MODS (METADATA OBJECTS AND DESCRIPTION SCHEMAS)**

- MODS Guide and Maintenance: <https://www.loc.gov/standards/mods/userguide/generalapp.html>

## **4. VRA (VISUAL RESOURCE ASSOCIATION) Core**

- VRA Core Guide and Maintenance: <https://www.loc.gov/standards/vracore/schemas.html>

## **5. PREMIS (PRESERVATION METADATA: IMPLEMENTATION STRATEGIES)**

- PREMIS Guide and Maintenance: <http://www.loc.gov/standards/premis/v3/premis-3-0-final.pdf>

## **6. TextMD (TECHNICAL METADATA FOR TEXT)**

- TextMD Guide and Maintenance: <https://www.loc.gov/standards/textMD/>

## **7. MIX (TECHNICAL METADATA FOR DIGITAL STILL IMAGES)**

- MIX Guide and Maintenance: <https://www.loc.gov/standards/mix/>

## **8. METS (METADATA ENCODING AND TRANSMISSION SCHEMAS)**

- METS Primer: <http://www.loc.gov/standards/mets/METSPrimer.pdf>

## **9. TM (TOPIC MAPS ONTOLOGY LANGUAGE)**

- TAO of Topic Maps: <https://ontopia.net/topicmaps/materials/tao.html>
- Living with Topic Maps and RDF: <https://ontopia.net/topicmaps/materials/tmrdf.html#N121>

## **10. RDF/OWL (RESOURCE DESCRIPTION FRAMEWORK AND WEB ONTOLOGY LANGUAGES)**

- RDF Primer: <https://www.w3.org/TR/rdf-primer/>
- Data Modeling, RDF, and OWL: An Introduction to Ontologies: <https://tdan.com/data-modeling-rdf-owl-part-one-an-introduction-to-ontologies>