



## **Summer School LEX 2014**

# **Managing Legal Resources in the Semantic Web**

### **DRAFT PROGRAM**

**1<sup>st</sup>-6<sup>th</sup> September 2014**

**8<sup>th</sup>-9<sup>th</sup> September 2014 – Akoma Ntoso Dev Workshop**

Law Faculty, Via Oberdan 1, Ravenna, Italy

#### **➤ Rationale of the Summer School**

Good management of legal documents involves at least six aspects:

- Drafting methods, to improve the language and the structure of legislative texts;
- Legal XML standards, to improve the accessibility and interoperability of legal resources;
- Legal ontologies, to capture legal metadata and legal semantics;
- Legal Knowledge extraction using natural language techniques;
- Formal representation of legal contents, to support legal reasoning and argumentation;
- Workflow models, to cope with the lifecycle of legal documents.

The summer school will address all of these aspects, through multi- and interdisciplinary competences. It will provide an integrated approach to the management of legal documentation, as a core aspect of legislative and administrative innovation.

For transforming these principles in success case inside of the public administration, it is additionally provided a two-days workshop dedicated to the Akoma Ntoso developers. The Akoma Ntoso Dev Workshop provides the basic technical skills for customizing Akoma Ntoso, Bungeni and any other tool available in open source for making up documents in Akoma Ntoso standard.

#### **➤ Programme**

##### **1st Sept.**

*Introductory overview of XML*

- Legal sources on the web: rationale, benefits, principles
- XML tutorial: Markup languages and web technologies
- Practice section: legal markup

##### **2nd Sept.**

*Introductory overview of URI, RDF and OWL*

- Naming Convention of the legal resources
- Metadata and RDF foundations
- Structuring legislative documents with XML standards
- Structural markup and legal metadata
- Practice section: legal markup

### 3rd Sept.

*Structure, naming, processes in the legal domain*

- Legislative traditions and drafting rules: pre-requirement of the legislative document management
- Naming legislative resource
- Ontology basic elements
- Pattern in ontology design
- Practice section: designing an ontology

### 4th Sept.

*Semantic Web for the law*

- Normative references: structuring and naming
- Modelling the legislative process and the changes in legal sources
- Practice section: legal markup

*Ontology in Legal domain*

- Ontology design: language, models and good practices
- Linguistic ontologies
- Legal ontologies
- NLP techniques for legal knowledge extraction
- Practice section: legal markup

### 5th Sept.

*Legal Knowledge Management*

- Legal Knowledge Modelling
- Legal Knowledge Representation
- Argumentation and Legal Reasoning
- Practice section: legal markup

### 6th Sept.

- Invited Speakers
- Presentation of the projects by the student
- Assessment and evaluation Project presentation (from the students)
- Evaluation

### 8th and 9th Sept.

- Akoma Ntoso Dev Workshop for developers.

### 🔗 Teachers

- Tommaso Agnoloni (agnoloni@ittig.cnr.it)
- Diego Valerio Camarda (dcamarda@regesta.com)
- Enrico Francesconi (francesconi@ittig.cnr.it)
- Aldo Gangemi ([aldo.gangemi@cnr.it](mailto:aldo.gangemi@cnr.it))
- Guido Governatori (Guido.Governatori@nicta.com.au)
- Monica Palmirani (monica.palmirani@unibo.it)
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- Adam Wyner (azwyner@abdn.ac.uk)

### 🔗 Tutor

- Luca Cervone
- Dina Ferrari

## BASIC MODULE 1-2 September

DATE	TEACHER	TITLE AND CONTENT DESCRIPTION
<b>1<sup>st</sup> Sept.</b>	<b>Chairman: Sartor</b>	<b>Introductory overview of XML – BASIC MODULE</b>
9.00-10.30	Sartor	<b>TITLE: Legal sources on the web: rationale, benefits, principles, methodologies and tools</b>  <b>ABSTRACT:</b> Introduction to XML in legal informatics, in particular about the legal sources on-line. Some examples of concrete benefits in the legal sector should be presented.
<i>10.30-11.00</i>		<i>Coffee Break</i>
11.00-13.00	Palmirani	<b>LECTURE SESSION</b> <b>SNAPSHOT OF DEMOS - PROOF THE CONCEPT</b>  <b>TITLE: XML tutorial: electronic management of documents</b>  <b>ABSTRACT:</b> The purpose of this section is to introduce the principal aspects of electronic management of documents: <ul style="list-style-type: none"><li>• What we actually mean by documents (the FRBR hierarchy)</li><li>• What are the components of documents</li><li>• What do we mean by data and metadata about documents</li></ul> <b>LECTURE SESSION</b>
<i>13.00-14.00</i>		<i>Lunch</i>
14.00-15.30	Palmirani/ Cervone	<b>PRACTICAL SECTION</b> <b>Analysis of a simple legal text.</b> A practical project is assigned to groups. How to mark up legislative document.  <b>Practical: Tagging the structure of a legislative Act</b> The aim of this practical section is to tag a legislative Act structure and normative references in Akoma Ntoso.
<i>15.30-16.00</i>		<i>Coffee</i>
16.00-18.00	Francesconi	<b>TITLE: Naming legislative resource</b>  <b>ABSTRACT:</b> In this talk an overview of the motivations as well as the technical aspects dealing with unequivocal, persistent, location-independent identifiers for legal materials on the Web will be presented. In particular a possible implementation using the URN technique will be shown. Similarly examples of tools and services able to implement such a standard will be presented. Benefits related to the adoption of this standard will be illustrated.  <b>LECTURE SESSION</b>

DATE	TEACHER	TITLE AND CONTENT DESCRIPTION
<b>2<sup>nd</sup> Sept.</b>	<b>Chairman: Palmirani</b>	<b>Introductory overview of URI, RDF, Legal Metadata – BASIC MODULE</b>
9.00-10.00	Francesconi	<p><b>TITLE: RDF and Semantic Mark-up of Legislative Texts</b></p> <p><b>ABSTRACT:</b> This section will provide an introduction to RDF semantic Web standard, in particular with examples to illustrate the expressivity power of RDF. A case-study of using RDF in the legal domain will be illustrated: starting from a semantic model of legislation able to describe legal provisions, a possible technique for RDF semantic annotation of legislative texts will be shown.</p> <p>Examples will be distributed to the classroom and commented with the students. The students should be able to understand the theory and the methodology, as well as to apply it to concrete cases.</p> <p><i>LECTURE SESSION</i></p>
10.00-10.30	Vitali	<p><b>TITLE: XML tutorial: Markup languages and web technologies</b></p> <p>Presentation of the main concepts of markup languages, XML characteristics, technical issues.</p> <p><b>ABSTRACT:</b> The purpose of this section is to introduce some technologies related to electronic management of documents</p> <ul style="list-style-type: none"> <li>• XML</li> <li>• DTDs</li> <li>• XML Schema</li> <li>• XSLT</li> </ul> <p>all somehow connected and related to parliamentary documents and other types of documents.</p> <p><i>LECTURE SESSION</i></p>
<i>10.30-11.00</i>		<i>Coffee Break</i>
11.00-13.00	Vitali	<p><b>TITLE: Structuring legislative documents with XML standards</b></p> <p><b>ABSTRACT:</b> We will consider how modern Information and Communication Technologies (ICT) are instrumental to the best access of citizens to legislation. Only through standards for data, processes and identification of legislation document we can exploit the advantages of ICT. For this reason we will introduce discuss standards and standardization activities with particular attention to legislative and parliamentary documents</p> <p><i>LECTURE SESSION</i></p>
<i>13.00-14.00</i>		<i>Lunch</i>
14.00-15.30	Vitali	<p><b>TITLE: Structural markup and legal metadata</b></p> <p><b>ABSTRACT:</b> The purpose of this section is to prove some basic methodological insights into the design of the legal document-models: what to look for when designing a vocabulary for XML documents, what regularities to exploit, what metadata to introduce, how to deal with metadata in a mixed XML and RDF/OWL environment.</p> <p><i>LECTURE SESSION</i></p>

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15.30 – 16.00

*Coffee Break*

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16.00-17.30 Palmirani/  
Cervone

**PRACTICAL SECTION**

**Practical: Tagging the metadata of a legislative Act**

The aim of this practical section is to tag a legislative Act structure and normative references in Akoma Ntoso.

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17.30-19.00

**Welcome Cocktail**

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17.30

**Welcome form the authorities**

Mayor of Ravenna City

Fondazione Flaminia

Provincia di Ravenna

Tribunale di Ravenna

Ordine degli Avvocati di Ravenna

Camera di Commercio di Ravenna

CIRSFID representative

EUI representative

ITTIG representative

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## ADVANCED MODULE - 3-6 September

DATE	TEACHER	TITLE AND CONTENT DESCRIPTION
<b>3<sup>rd</sup> Sept.</b>	<b>Chairman: Schefbeck</b>	<b>TITLE: Structure, Naming, Processes in the legal domain – Advanced Module</b>
9.00-10.30	Schefbeck	<p><b>TITLE: Legislative traditions and drafting guidelines: pre-requirement of the legislative document management</b></p> <p><b>ABSTRACT:</b> The legislative drafting process comprises several distinct steps: It is based on the requirement of analyzing (and “understanding”) the respective political instructions, and it includes designing, composing, editing, and scrutinizing legislative documents. This regularly is to be done within a framework of legislative drafting rules, which in different normative systems may belong to different kinds of regulations, ranging from mere recommendations to binding legal rules.</p> <p>The lecture will stimulate reflection on different legislative traditions and legislative drafting rules, but it will focus on a specific set of drafting guidelines developed within the Akoma Ntoso project and based upon the Akoma Ntoso standard. This set of legislative drafting guidelines takes into account the experiences of different normative systems belonging to the Continental as well as Anglo-Saxon traditions.</p> <p>Finally, some practical advice and examples will be given. They will cover the different issues of style and usage in writing laws, as well as the “architecture” or systematic organization of legal regulations. Based on the experiences presented, four basic principles for legislative drafting may be developed: economy, clearness, system and formalism.</p> <p style="text-align: center;"><i>LECTURE SESSION</i></p>
10.30-11.00		<i>Coffee Break</i>
11.00-13.00	Gangemi	<p><b>TITLE: Semantic Web Ontologies: OWL, Linked Data, and Basic Design Patterns</b></p> <p><b>ABSTRACT:</b> A quick overview of the features of semantic web languages, semantic data linking, and information extraction will be presented. The students are asked to read introductory material about linked data and OWL in advance for best results from this session. The lecture will use a web browser for exploration of existing tools, and an ontology editor to introduce OWL and SPARQL constructs.</p> <p style="text-align: center;"><i>LECTURE SESSION</i></p>
13.00-14.00		<i>Lunch</i>
14.00-15.30	Gangemi Peroni	<p><b>Hands-on linguistic ontologies and design patterns</b> <b>TITLE: Hands-on Basic Ontology Design.</b></p> <p><b>ABSTRACT:</b> This is a hands-on session in creating and publishing an ontology for a specific task in the legal domain. RDF, OWL, and design principles will be applied here. The students will use the FRED tool for pattern-based knowledge extraction from text, and the NeOn Toolkit ontology editor with some of its plugins, please download it from: <a href="http://neon-toolkit.org/wiki/Download/2.3.1">http://neon-toolkit.org/wiki/Download/2.3.1</a>, choose your preferred platform, and add the following additional features: KC-Viz, OWLDoc, RaDON, Reasoner, SPARQL, Watson, XDTools.</p> <p style="text-align: center;"><i>PRACTICAL SESSION</i></p>
15.30-16.00		<i>Coffee Break</i>

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16.00-17.30	Palmirani	<b>TITLE: Naming of referencing and modifications: theoretical models, legislative traditions and drafting requirements</b>  <b>ABSTRACT:</b> This session addresses naming and normative referencing in theory and practices with a comparative approach. We also consider the specific problem related to the modificatory provisions, which create often complexity and affect the legal certainty. We argue that certain aspects of the legal language can be standardised and simplified, and that can favour computer elaboration using the semantic web technologies.  <i>LECTURE SESSION AND PRACTICAL SESSION</i>
17.30-18.00	Vitali	<b>TITLE: AKOMA NTOSO RESOLVER</b> <b>ABSTRACT:</b> Akoma Ntoso resolver is a tool that includes fundamental principles for managing the IRI in persistent manner. This session presents those principles and also a practical demo.
20.00		<b><i>SOCIAL DINNER</i></b> CA' DE' VEN Via Corrado Ricci 24, Ravenna Tel. +39.0544.30163 Fax +39.0544.30163 <a href="http://www.cadeven.it/">http://www.cadeven.it/</a>

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DATE	TEACHER	TITLE AND CONTENT DESCRIPTION
<b>4<sup>th</sup>Sept.</b>	<b>Chairman: Tiscornia</b>	<b>Semantic Web in Legal document</b>
9.00 - 10.30	Agnoloni <i>Ittig-CNR</i>	<p><b>TITLE: Semantic Resources for legal texts annotation (legal lexicons, legal thesauri, legal ontologies)</b></p> <p><b>ABSTRACT:</b></p> <p>This session will present an overview on semantic resources for legal texts annotation and processing. Different kind of resources (linguistic, lexical, conceptual, formal) will be introduced with examples and their differences, methodological premises, intended use and possible integration will be highlighted.</p> <p>The peculiarities of the legal domain and legal language will be discussed in relation with the construction and use of legal semantic resources.</p> <p>The issue of multilingualism, multilingual and multi-legal system access to legal information will be also discussed showing how formalized lexical, linguistic and conceptual legal resources can support the task.</p> <p><b>LECTURE SESSION</b></p>
<i>10.30-11.00</i>		<i>Coffee Break</i>
11.00-12.30	Venturi ILC-CNR	<p><b>TITLE: Natural Language Processing and Legal Knowledge Extraction</b></p> <p><b>ABSTRACT: ABSTRACT:</b></p> <p>This session aims at providing an overview of the use of Natural Language Processing (NLP) for Legal Knowledge Extraction with a specific view to the construction of semantic resources and domain-specific semantic annotation. Firstly, the NLP tools and techniques will be introduced. Secondly, we will show how the results can be fruitfully exploited to automatically extract the relevant knowledge contained in legal text collections. The session is focused on two main Knowledge Extraction goals: i) the structuring of the extracted knowledge in semantic resources, such as domain-specific ontologies or thesauri, an ii) the semantic annotation of texts to pave the way to content-based access and querying.</p> <p><b>LECTURE SESSION</b></p>
12.30-13.15	Palmirani/ Agnoloni	<p><b>TITLE: Legal Open Data</b></p> <p><b>ABSTRACT:</b> Open document and Open data principles are presented with some concrete cases.</p> <p><b>LECTURE SESSION</b></p>
<i>13.15-14.15</i>		<i>Lunch</i>
14.30-15.30	Palmirani	<p><b>TITLE: Modelling the legislative lifecycle</b></p> <p><b>ABSTRACT:</b> Legal resources are no longer isolated document and they result from a complex lifecycle including versioning, variant and derived sub-products. More and more the attention of the legislative informatics is moving from the eLegislation model to a new eParliament approach. In the latter approach all lifecycle events are modelled in digital way and proper metadata</p>

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are capture in any phase of the legislative process and beyond in the publishing sector.

The lecture presents the metadata for modelling the lifecycle, the methodologies of consolidation/versioning, the metadata for tracking all the workflow inside of the legislative process.

***LECTURE SESSION***

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15.30-16.00

*Coffee Break*

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16.00-18.00    Palmirani/  
                    Camarda

***Practical Section***

**Practical: SPARQL Open Data based on Chamber of Deputies and Senate of Italy datasets**

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DATE	TEACHER	TITLE AND CONTENT DESCRIPTION
<b>5<sup>th</sup> Sept.</b>	<b>Chairman: Sartor</b>	<b>Legal Knowledge Management</b>
9.00-10.45	Sartor	<p><b>TITLE: Introduction to Legal Knowledge Management</b></p> <p><b>ABSTRACT:</b> Legal Knowledge Management is focused on strategic issues that might require improving accessible (legal) sources of knowledge but is not limited to that since the sources are represented and argued about. In this lecture an overview of strategic knowledge management issues is presented and illustrated with current developments.</p> <p><i>LECTURE SESSION</i></p>
10.45-11.15		<i>Coffee Break</i>
11.15-12.00	Peters	<p><b>TITLE: Natural Language Techniques for Legal Knowledge Management</b></p> <p><b>ABSTRACT:</b> A text with legal content expressed in natural language can, to a large extent, be automatically annotated with semantic mark-ups using natural language processing systems such as the General Architecture for Text Engineering (GATE). The lecture gives an overview of GATE, some examples of extraction from legal cases and legislation, and an indication of future research trends.</p> <p><i>LECTURE SESSION</i></p>
12.00-13.00	Peters	<p><b>TITLE: Computational Models of Legal Arguments</b></p> <p><b>ABSTRACT:</b> This lecture presents the basic motivation for modelling argumentation is given. Examples from a practical case are used to demonstrate the current state of the art and the open issues.</p> <p><i>LECTURE SESSION</i></p>
13.00 -14.15		<i>Lunch</i>
14.30-15.30	Peters	<p><b>TITLE: The structure of argumentative legal texts</b></p> <p><b>ABSTRACT:</b> Many legal texts are argumentative, such as the case files exchanged by the parties in a case, the court's decision in a case, scholarly publications and discussions and opinions in legal blogs. In this part of the course an introduction is given to the argumentative structure of such texts. The following topics will be discussed:</p> <ul style="list-style-type: none"> <li>• the structure of argument;</li> <li>• argument and counterargument;</li> <li>• legal argumentation schemes.</li> </ul> <p>There will be some examples of how to use GATE to support the identification and extraction of argument elements.</p> <p><i>PRACTICAL SESSION</i></p> <p><b>ABSTRACT:</b> In lab exercises to draw argument graphs using Araucaria and to extract information from legal cases, legislation and arguments using GATE.</p>

15.30-16.00		<i>Coffee Break</i>
16.00-17.45	Palmirani Governatori	<b>LEGALRULEML PRESENTATION AND PRACTICE</b>
18.00-19.30	Vitali/ Palmirani	<b>LEGALDOCML FACE 2 FACE MEETING</b>
20.00		<b>Social Dinner on the beach - unofficial dinner not included in the fee</b>

## 6<sup>th</sup> Sept.

### Legal Open Document and Data

9.00-13.00		Invited speakers: Legal Open Document and Data
13,00-14,00		<i>Lunch</i>
14.00-15.30		Invited speakers: Legal Open Document and Data
15.30-16.30		<i>Diploma Ceremony</i>
16.30-18.30		<b>Tour in Ravenna City</b> Guided tour in the Ravenna City

*\* The program may be subject to change*