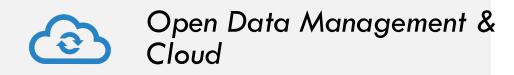


## LECTURE 1 -INTRODUCTION





(DSSC-DMG)



## WHO WE ARE...

#### LECTURER

Sara Bertocco Andrea Bignamini Marco Frailis Giuliano Taffoni

Istituto Nazionale di AstroFisica (INAF)

#### **HOWTO CONTACT US**

Mailing list

DSSC Google group

whatsapp/telegram group



# LECTURE "BLOCKS"

### Introduction

Data and Metadata Models and Structures

Data Cloud and Cloud Computing

Data Resource Interoperability and Access



## COURSE & LESSONS: INTRODUCTION

Big Data

Open Data

• FAIR principles



## COURSE & LESSONS: DATA AND METADATA MODELS AND STRUCTURES

- Data models: definitions and design;
- Data structures and metadata;
- UML, ORM, XSD, JSON, data structure formats, tabular formats, images, hierarchical structures, including metadata query-ability.

# COURSE & LESSONS: CLOUD

- Introduction on computing and cloud computing
- Cloud computing main concepts and architecture
- Virtualization
- Containers and orchestration
- Infrastructure as a Service: theory and examples
- Platform as a Service: theory and examples
- Service orchestration and cloudnomics
- Cloud storage and data cloud



# COURSE & LESSONS: INTEROPERABILITY

- (Persistent) Identifiers
- (Resource) Catalogues
- Data models for Discovery
- Data Curation & Preservation
- Interfaces & Dataset Access



# **COURSE CALENDAR**

| Ottobre |   |   |    |    |    |    |    |    |    |    |    |   | Novembre |   |    |    |    |    |    |    |    |    |    |    |    | Dicembre |    |    |    |    |    |    |    |    | Gennaio |    |    |
|---------|---|---|----|----|----|----|----|----|----|----|----|---|----------|---|----|----|----|----|----|----|----|----|----|----|----|----------|----|----|----|----|----|----|----|----|---------|----|----|
| 1       | 2 |   | 3  | 4  |    | 5  | 6  |    | 7  | 8  | 9  |   | 10       |   | 11 | 12 |    | 13 | 14 |    | 15 | 16 |    | 17 | 18 |          | 19 | 20 |    | 22 | 22 |    | 23 | 24 |         |    |    |
| м       | G | ۷ | М  | G  | V  | М  | G  | V  | М  | G  | v  | м | G        | ۷ | М  | G  | v  | М  | G  | v  | М  | G  | ۷  | М  | G  | V        | М  | G  | V  | М  | G  | v  | М  | G  | м       | G  | v  |
| 5       | 7 | 8 | 12 | 14 | 15 | 19 | 21 | 22 | 26 | 28 | 29 | 2 | 4        | 5 | 9  | 11 | 12 | 16 | 18 | 19 | 23 | 25 | 26 | 30 | 2  | 3        | 7  | 9  | 10 | 14 | 16 | 17 | 21 | 23 | 11      | 13 | 14 |

#### Introduction

- **Data and Metadata Models and Structures**
- **Data Cloud and Cloud Computing**
- **Data Resource Interoperability and Access**

# LECTURE FORMAT



The course will be on a mixed form: in presence & on-line



We will use MS Teams and 45' (2x) including questions.



Recorded Lectures will be available on-line in Moodle (before/after)



Cloud part will be "flipped": recorded lectures and in presence questions and hands-on

Moodle page: https://moodle2.units.it/course/view.p hp?id=8415



## KNOWLEDGE VERIFICATION

#### Preparation of a small "project" on data management and interoperability

- Using what's been learned during the course
- Including cloud solution identification
- Possibly showing some real snippets or ideas of implementation

Presentation of the project to the class & lecturers

With dedicated Q&A time

# SURVEY & DISCUSSION



{fill in the survey form}

Discuss it



Open discussion on the expectations



(and/or) insights on the course content

## AND REMEMBER....

#### Always contact us in case of questions, problems or curiosity

Andrea Bignamini

Sara Bertocco

Marco Frailis

Giuliano Taffoni

#### Special guest:

Stefano Russo

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