

# Interoperability between Health Information Systems

Towards the Standard-based Interoperable Electronic Health Record

With the support of



## *open*EHR

Open standard for future-proof EHRs



International standard for health data communication



International standard for imaginology

## Goals

The main goal of this course is to allow students to understand and gain practical experience on using standards to enable interoperability between Health Information Systems. This includes: using different communication protocols and message formats, knowing how to read standard specifications, and use tools that help on implementation and testing.

## Target audience

The main target is for IT professionals and students interested in the eHealth domain, especially software and integration architects, programmers, technical leaders, network managers, among other roles. Programming skills are required to do the assignments, but assignments are optional.

## Program

The course is organized in four modules. Each module has an synchronous online session and an associated assignment.

	Topics
<b>Module 1</b> Architecture and Communication Protocols	<ul style="list-style-type: none"><li>• Architecture of hospital information systems</li><li>• Communication protocols and messaging formats</li><li>• Tools to work with inter-system communications</li></ul>
<b>Module 2</b> HL7 v2.x Messaging	<ul style="list-style-type: none"><li>• HL7 v2.x messaging, structure and specification chapters</li><li>• Main message types (ADT, ORM, ORU and ACK)</li><li>• Building messages with HAPI, using ER7 and XML encoding</li><li>• HL7 use case examples</li></ul>
<b>Module 3</b> DICOM Architecture and Communications	<ul style="list-style-type: none"><li>• Architecture of imaginology systems (RIS, PACS, Modalities, Workstations)</li><li>• DICOM information model, DICOM tags</li><li>• DICOM services (Store, Q/R, WADO, etc.)</li><li>• Tooling presentation: DCM4CHEE PACS and DCM4CHE Toolkit</li></ul>
<b>Module 4</b> Semantic Interoperability with openEHR	<ul style="list-style-type: none"><li>• openEHR clinical record structure</li><li>• openEHR archetypes and templates</li><li>• openEHR clinical document management in XML (generation, processing, validation, versioning)</li><li>• Storing and semantic querying of openEHR clinical data</li></ul>

## Modality

The course is 100% and has four synchronous sessions that will be given via Adobe Connect (\*). Sessions will be recorded for further reference.

After each session, the correspondent assignment will be presented. Assignments are individual and can require writing program code and using recommended tools. Assignments are optional.

Further reading materials and resources will be recommended. Doubts and related topics will be discussed in the ACHISA's Virtual Campus forum.

(\*) Gently provided by Hospital Italiano de Buenos Aires.

## Duration

The course has a duration of six weeks. Dates and session time will be established on the next open enrollment period. To receive information about the next open enrollment period, register in the course waiting list: <http://www.cabolabs.com/en/training>

## Evaluation and Certification

The course will be approved with the points obtained from the evaluation of the assignments. In total the assignment points are 100, a minimal amount of 50 points is required to approve.

The organizers, ACHISA and CaboLabs, will emit two types of certificates:

- PARTICIPATION: for all the participants.
- APPROVAL: for the participants with at least 50 points from delivered.

## Recommended Background

It is recommended to have notions of communications protocols (TCP, HTTP), and formats like XML and JSON. It is required to have programming knowledge. Java will be the reference language, but other languages can be used on the assignments.

## Enrollment

If enrollment is not open, please register in the course waiting list to receive a notification on the next edition of the course: <http://www.cabolabs.com/en/training>

When you complete the enrollment form, instructions are shown about the payment options and next steps to finish the enrollment process.

Choose between these categories:

Category	Discount	Fee
Normal Registration	-	<b>250 USD</b>
Undergraduate student +	40%	<b>150 USD</b>

+ After the enrollment, a certification from your university should be sent to [pablo.pazos@cabolabs.com](mailto:pablo.pazos@cabolabs.com) to verify your active student status.

## About the trainer

The course will be delivered by Pablo Pazos Gutiérrez. He is a Computer Engineer from Uruguay, specialized in the eHealth domain. Director of CaboLabs: Health Information Systems, Standards and Interoperability, and creator of the courses delivered through CaboLabs with the support of ACHISA.

### Ing. Pablo Pazos Gutiérrez

- Member of the openEHR community since 2006
- Qualified member of the Localization, Software and Specification Programs of the openEHR Foundation
- Coordinator of the openEHR community in Spanish
- Creator of the eHealth courses and workshops delivered by CaboLabs
- Creator of open source systems and tools for eHealth
- Director of CaboLabs: Health Information Systems, Standards and Interoperability,

CaboLabs: <http://cabolabs.com>

YouTube: <https://www.youtube.com/c/CaboLabsHealthInformatics>

LinkedIn: <http://www.linkedin.com/in/pablopazosgutierrez>

Blog (Spanish): <http://informatica-medica.blogspot.com>

openEHR ES: <http://www.openehr.org.es>

## Acknowledgments

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**ACHISA supports knowledge dissemination in the Health Informatics discipline, especially about the available standards and specifications.**