Course Program

WELCOME TO THE HL7 FHIR INTERMEDIATE COURSE

This is the Global Release of the HL7 FHIR Intermediate Course.
We hope you enjoy this course and that everything you are going to learn will be useful in your future endeavors.

BASIC CONCEPTS

Information exchange requires syntactic and semantic rules in order to ensure the proper transmission, sharing and processing of data or messages. This is especially true in the realm of health care, where patients' health can rely on the quick and accurate sharing of information. Defining this set of syntactic and semantic rules, allowing for the effective capture, storage and transmission of health care information, falls under the general area of Biomedical Informatics.

Initially, as health care institutions began to automate their information management (IM) processes, their initiatives focused primarily on the reduction of paper processing, particularly in the administrative accounting area. More recent IM process initiatives have focused on improvements in areas such as ambulatory care and in-patient care and ancillary services to such an extent that the goal now is the integration of all health care related information, and the development of an integrated electronic health record.

Many health organizations continue to rely on disparate systems, many of them based on older legacy systems. While systems such as billing and accounting may be able to share information, very few systems take a comprehensive view of health care data. This results in informational inefficiencies at many stages as patients move through the health care system, for instance as they move from a general practitioner's office to a testing facility to a specialist's office, none of which has the ability quickly communicate, coordinate and share information. The inefficiencies created by these 'islands' of information create, at the least, added expense and frustration.

Driven both by a desire to improve quality of care and decrease administrative time and expense, health care organizations are beginning to look towards fully integrating all of the information systems. The goal is to capture information one time, at the site it is generated, with all the key attributes needed to later share that information among all potential perspectives – administrative, accounting, legal, education,

epidemiological, clinical, etc. Such integration relies on a full set of comprehensive and semantically-coherent messaging standards.

The goal of this course, then, is to introduce the key concepts of electronic messaging interoperability in the health care arena. The course objectives include:

- Introducing students to the key concepts in electronic messaging standards and communication, focusing on the implementation of the HL7 messaging system
- Helping students to understand and apply the Reference Information Model (RIM) in instances of data exchange
- Helping students to understand and apply a reference model for the exchange of clinical document, and
- Helping students to understand how the above can work together in the creation of a consolidated, integrated health care information management system

Who should attend this course?

This course is directed towards application developers, software engineers, consultants in information technology and anyone who is interested in developing FHIR applications using FHIR

- Developers who are already familiar with FHIR and wants to delve deep into the knowledge required to use it for real world projects
- People with experience programming with C# / Java and/or JavaScript and wanting to gain more in depth FHIR knowledge
- Those who wish to gain an overall technical experience of Smart-On-FHIR and CDS-Hooks

As this is a virtual course students need to know how to navigate through a web site in order to access the course resources.

This course also requires fluency in reading/writing the English language.

IMPORTANT: Some assignments of this course requires fluency in developing computer software in Java, C# or JavaScript/Node.JS and using development platforms and editors (IDE). This course DO NOT include the knowledge or support capabilities about the platforms or editors used by each participant. We can only give you support on FHIR related concepts and methods.
Some Example Platforms:

Node + YARN/NPM + Visual Code (JS)
Visual Studio (.NET)
IntelliJ / Eclipse / Netbeans (JAVA)

It's your choice. But you should already know how to use it.

GENERAL PURPOSES OF THE COURSE

At the end of the course, participants should:

- Understand the scope and content of the Argonaut and IPS IG.
- Comprehend the general characteristics of a FHIR Client.
- Understand and being able to modify a FHIR Client in C#, Java or JavaScript.
- Understand the mechanisms for FHIR Servers used as API Facades

- Use Smart-On-FHIR to connect to a EHR
- Use CDS-Hooks to provide Clinical Decision Support for an application or system.

Structure and Objectives of the Course

Module I: Implementation Guides

Most Relevant FHIR Implementation Guides: Argonaut & IPS
Argonaut Development and Roadmap
Argonaut Data Query IG: Scope, Use Cases
Argonaut Provider Directory IG: Scope, Use Cases
IPS FHIR IG: Scope, Use Cases

Module II: FHIR Clients

General Guidelines for FHIR Clients
FHIR Clients in JavaScript / C# / Java [1 - Elective]

Module III: FHIR Facades

Why Use FHIR Server Facade: Your System on FHIR
Specific FHIR Servers (FHIR Facade)
Facade Use Case / Scenarios
Facade Architecture / Patterns
Where to Put the FHIR Facade
System Integration / Integration Engine / Bus / Messaging
Facade in C# / Node.JS [1 - Elective]

Module IV: FHIR Applications

SMART on FHIR
CDS Hooks
Integration with SMART on FHIR/CDS Hooks [1 - Elective]

METHODOLOGY

The course was developed using the Virtual Campus of HL7 International manage by HL7 Argentina. It is based on a educational model for collaborative learning (Moodle).

Each unit has specific educational resources selected and prepared by the teaching staff. Course material will be available weekly on the Virtual Campus.

These resources include:

- Study guides facilitating the student learning process
- Reading materials developed by teachers
- Application Activities using course acquired knowledge
- Links to other interesting sites or reading material
- Videos (for selected topics)

The activities will promote the exchange and use of knowledge and experiences of students as well as facilitate the implementation of new apprenticeships to professional practice. The activities will include:

- Mandatory weekly assignments: activity required for approval of course completion.

What else should I know?

The course has virtual classrooms. The role of the teacher is to assist during the module, respond to student questions, after class reading and doing weekly assignments.

The tutors will guide and encourage the learning process and will reply to your questions within two week days. Even though the tutors are there to assist you, we also encourage and recommend that students help each other.

COMMUNICATION

Online forums will be the place of communication allowing interaction between those taking the course.

By subscribing to a forum, every participant will receive copies of messages in their e-mail box. Subscription may be required. If subscription is required, your Tutor can register you.

GRADING

This course's assignments are graded MANUALLY by our tutors. So you need to be patient. Grading may take1 or 2 weeks from submission.

CERTIFICATION

The approval of this course is a requirement for the certification; however, students can attend it regardless of course completion certification.

If students want to receive an Official Course Completion Certificate, they must satisfactorily complete all mandatory assignments in the specified timeframe.
HL7 International issues this certificate.

This course does not issue HL7 product certifications. You can take official HL7 certification in your country on HL7 V2, V3 RIM , HL7 CDA and on FHIR. This is a separate process. This course will teach material that will help you prepare for the certification exam. Many HL7 Affiliates also offer face to face classes to prepare for the HL7 certification exam.

This course is estimated to take about 10 hours / week to complete.

For further information or inquiries please contact your affiliate coordinator or course coordinators.