

# ► Diploma in Health Informatics 2023

*Health Information Systems:  
Requirements for a Successful Design and Implementation*

Sistemas de Información en Salud:  
Requisitos para un Diseño e Implementación Exitosa

Sep. 20 – Dic. 16  
Santiago, Chile

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## Introduction Module 0: Academic Staff

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## Locations/ Address

### *Heidelberg Center para América Latina*

Las Hortensias 2340, Providencia, Santiago, Chile



Calendar: 20 September – 16 December 2023							
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
SEPTEMBER							
	18	19	20	21	22	23	24
MOD 0/1	CHILEAN HOLIDAY	CHILEAN HOLIDAY	M0-START Martínez 18:00-20:00h S M1-Wettstein A			M1-Wettstein 12:00-13:30h S	
SEPTEMBER							OCTOBER
	25	26	27	28	29	30	1
					M1-Portilla 18:00-21:00h S	M1-Portilla 9:00-12:00h S	
	2	3	4	5	6	7	8
		M1-Wettstein A			M1-Wettstein 12:00-13:30h S		
	9	10	11	12	13	14	15
	CHILEAN HOLIDAY					M1-Portilla 9:00-12:00h S	
	16	17	18	19	20	21	22
		M1-Wettstein A			M1-Wettstein 12:00-13:30h S	M1-Orefice 9:00-12:00h S	
	23	24	25	26	27	28	29
MOD 2	M0-Martínez 18:00-20:00h S		M1-EXAMEN 18:00-20:00h S	M2-Seitz A	CHILEAN HOLIDAY		
OCTOBER			NOVEMBER				
	30	31	1	2	3	4	5
	M2-Seitz A		CHILEAN HOLIDAY	M2-Seitz A	M2-Hebel 9:30-13:00h H Camus 15:00-18:30h H	M2-Seitz 10:00-11:30h S	
	6	7	8	9	10	11	12
	M2-Seitz A		M2-Seitz A		M2-Hebel 9:30-13:00h H Camus 15:00-18:30h H	M2-Seitz 10:00-11:30h S	
	13	14	15	16	17	18	19
MOD 3			M0-Martínez 18:00-20:00h S		M3-Cerda 9:30-13:00h Merino 15:00-18:30h H	M3-Benning 9:00-16:20h H	
	20	21	22	23	24	25	26
	M2-EXAMEN 18:00-20:00h S				M3-Benning 9:00-16:20h H	M3-Benning 9:00-16:20h H	
NOVEMBER				DECEMBER			
	27	28	29	30	1	2	3
		M3-Benning A				M3-Rojas 9:30- 13:00h Gatica 15:00-18:30h H	
	4	5	6	7	8	9	10
			M3-EXAMEN 18-20h S		CHILEAN HOLIDAY		
	11	12	13	14	15	16	17
	M0-Martínez 18:00-20:00h S					CLOSING 10:00-13:00h H	PLEBISCITE

Synchronic (S) – Asynchronic (A) – Hybrid (H)

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**Module 0 - Introduction: Basics Concepts in Health Informatics (10% of final grade)**

**Module 1: Interoperability in HealthCare (30% of final grade)**

**Week 1:**

Wednesday 20 September

- 0-1** S. Härtel **Synchronous 18:00-20:00h**  
S. de la **Welcome Session.**  
Fuente *General information and students' presentation.*  
R. Martinez **Digital Transformation in Healthcare.**  
*The students will learn basic concepts and examples of digital transformation in healthcare.*

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- 1-1** R. Wettstein **Asynchronous**  
**Introduction to eHealth & IHE, IHE Identity Management.**  
*The participants will learn about the fundamentals of eHealth and the basic concepts of Integrating the Healthcare Enterprise (IHE). Furthermore, we will look at the first group of IHE profiles in the IT-infrastructure domain regarding identity management.*

Saturday, 23 September

- 1-2** R. Wettstein **Synchronous 12:00-13:30h**  
**Introduction to eHealth & IHE, IHE Identity Management.**  
*The participants will learn about the fundamentals of eHealth and the basic concepts of Integrating the Healthcare Enterprise (IHE). Furthermore, we will look at the first group of IHE profiles in the IT-infrastructure domain regarding identity management.*

**Week 2:**

Friday, 29 September

- 1-3** F. Portilla **Synchronous 18:00-21:00h**  
**Syntactic interoperability.**  
*The participants will learn about HL7 V2: fundamentals, messaging, tools, together with hands on experiences; HL7 CDA: fundamentals, clinical documents, tools, hands on experiences; HL7 FHIR: fundamentals, resources, tools, hands on experience.*

Saturday, 30 September

- 1-4** F. Portilla **Synchronous 9:00-12.00h**  
**Semantic interoperability.**  
*The students will be able to learn about LOINC: fundamentals, search engines and uses. SNOMED CT: fundamentals, search engines, uses; Terminology Services: fundamentals, use cases, FHIR and ST and experience.*
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**Week 3:**

Tuesday, 03 October

- 1-5** R. Wettstein **Asynchronous**  
***IHE Document Sharing, IHE Privacy***  
*We will talk about the second group of IHE profiles regarding document sharing between organizations and how to integrate these profiles with the ones about identity management. Additionally, the participants will learn about securing IHE infrastructures using use-case dependent IHE privacy profiles.*

Friday, 06 October

- 1-6** R. Wettstein **Synchronous 12:00-13:30h**  
***IHE Document Sharing, IHE Privacy***  
*We will talk about the second group of IHE profiles regarding document sharing between organizations and how to integrate these profiles with the ones about identity management. Additionally, the participants will learn about securing IHE infrastructures using use-case dependent IHE privacy profiles.*

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**Week 4:**

Saturday, 14 October

- 1-8** F. Portilla **Synchronous 9:00-12:00h**  
***Architectures for health interoperability***  
*The participants will learn about: IHE profiles, IHE and FHIR. National and regional interoperability experiences and Integration of biomedical devices.*

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**Week 5:**

Tuesday, 17 October

- 1-9** R. Wettstein **Asynchronous**  
***IHE Workflow, Summary & Questions***  
*We will look at different possibilities to define workflows in hospital environments. Finally, we will reconcile all considered the IHE profiles, answer open questions and prepare for the final exam.*

Friday, 20 October

- 1-10** R. Wettstein **Synchronous 12:00-13:30h**  
***IHE Workflow, Summary & Questions***  
*We will look at different possibilities to define workflows in hospital environments. Finally, we will reconcile all considered the IHE profiles, answer open questions and prepare for the final exam.*

Saturday, 21 October

- 1-7** P. Orefice **Synchronous 9:00-12:00h**  
***(Cambio del 13 al 21 de Octubre) Architectures for health interoperability***  
*The participants will learn about digital health strategies in the region and the case of Uruguay.*



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## **Week 6:**

Monday, 23 October

- 0-2 R. Martínez **Synchronous 18:00-20:00h**  
***Main Tools to initiate Digital Transformation in Healthcare.***  
*The students will be able to identify and use different tools to transform healthcare.*

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Wednesday, 25 October

- Ex S. de la Fuente **Synchronous 18:00-20:00h**  
***Examen I***

### **Module 2: Medical Documentation and Terminologies (30% of final grade)**

Thursday, 26 October

- 2-1 M. Seitz **Asynchronous**  
***Principles of medical documentation***  
*Students shall learn about clinical treatment pathways, objectives, and relevance of medical documentation as well as documentation systems and the basic vocabulary of medical documentation.*

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## **Week 7:**

Monday, 30 October

- 2-2 M. Seitz **Asynchronous**  
***Patient records***  
*The participants get an overall view of the different kinds of patient records and the stored data. The participants will learn about paper-based records, electronic patient records, shared patient records and health records. For each patient record a SWOT analysis (strengths, weaknesses, opportunities, and threats) will be performed.*

Thursday, 02 November

- 2-3 M. Seitz **Asynchronous**  
***Medical classification systems***  
*Students will learn about the difference between classifications and nomenclatures, the most important properties of classifications and nomenclatures, the most important medical classifications and nomenclatures, the meaning of precision and recall.*

Friday, 03 November

- 2-4 E. Hebel **Hybrid 9:30-13:00h**  
***Representation of Medical Knowledge and Clinical Terminologies***  
*Students will be able to recognize the mechanisms by which medical knowledge is represented through health information systems and their impact on the transmission of information for clinical and continuity of care use.*
- 2-5 L. Camus **Hybrid 15:00-18:30h**  
*We will talk about the purpose and applicability of Diagnosis Related Groups as a clinical management tool, the structure, and metrics of DRGs and participate in a Workshop on interpretation of performance indicators.*

Saturday, 04 November

**2-6** M. Seitz **Synchronous 10:00-11:30h**  
*Short summary of this week's topics (Medical documentation, patient records and medical classification systems).  
Discussion of exercises and questions.*

**Week 8:**

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Monday, 06 November

**2-7** M. Seitz **Asynchronous**  
***Interaction of clinical decision support and documentation***  
*Students will learn that clinical decision support requires medical documentation and, conversely, that decision support enhances and complements documentation.  
Components of a Clinical Decision Support System (CDSS), Rule Based Reasoning (RBR), Case Based Reasoning (CBR).*

Wednesday, 08 November

**2-8** M. Seitz **Asynchronous**  
***Security of medical data***  
*Students will learn about basic security criteria for handling (medical) data, security terms, possibilities of attack and how to deal with them, encryption, authentication, tracking and data security aspects in hospitals.*

Friday, 10 November

**2-9** E. Hebel **Hybrid 9:30-13:00h**  
***Quality Assessment through Structured Clinical Information.***  
*Students will be able to know and understand the mechanisms available for quality management in health facilities, through the information generated and collected through health information systems.*

**2-10** L. Camus **Hybrid 15:00-18:30h**  
*Purpose and applicability of DRGs as a payment mechanism in the hospital setting.  
Relevance of Data Quality and Use of Classification System of diagnoses and procedures (ICD10 and ICD 9 MC) for the grouping of cases by DRG.  
Workshop on clinical case analysis and DRG payment estimation.*

Saturday, 11 November

**2-11** M. Seitz **Synchronous 10:00-11:30h**  
*Short summary of this week's topics (Interaction of clinical decision support and documentation, Security of medical data).  
Discussion of exercises.  
**Questions, Feedback.***

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## Week 9:

Wednesday, 15 November

- 0-3** R. Martínez **Synchronous 18:00-20:00h**  
**Health Information Systems: Main concepts.**  
*The main concepts and modules of health information systems, both administrative and clinical, will be reviewed.*

Monday, 20 November

- Ex** S. de la Fuente **Synchronous 18:00-20:00h**  
**Examen II**

### Module 3: Health Information Systems (30% of final grade)

Friday, 17 November

- 3-1** M. Cerda **Hybrid 9:30-13:00h**  
**Change Management**  
**Clinical research in medical informatics.**  
*- Image processing*  
*- Natural language processing*  
*- Clinical trials*
- 3-2** J.I. Merino **Hybrid 15:00-18:30h**  
**Change Management**  
*In this class we will present the main concepts of Organizational Change Management and its role in the Implementation of information systems projects. We will review recent research data and some of the best practices of the Change Management discipline applied to a case. Participants will have the information to make their own basic change management plan.*

Saturday, 18 November

- 3-3** N. Benning **Hybrid 9:20-16:20h**  
*We will learn about the global and regional context in the management of Health IT projects, basic components of project management, and different roles of a project. The stages of a project and associated tasks, Types of representation of the organizational structure of a project.*

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## Week 10:

Friday, 24 November

- 3-4** N. Benning **Hybrid 9:20-16:20h**  
*Participants will learn about: Planification stage: visualization of the project timeline. Definition of objectives (goals) of the project and how to reach them. Definition of objectives based on S.M.A.R.T criteria. How to establish the contract. Deliverable of the project. Final reports of each stage. Characteristics of the effective meetings.*

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Saturday, 25 November

**3-5** N. Benning **Hybrid 9:20-16:20h**  
*Participants will learn about: Techniques of Agile Project Management.  
Scrum as a methodology to support the work of software development teams.  
Presentation of students (seminars 'of medical case studies').*

**Week 11:**

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Tuesday, 28 November

**3-6** N. Benning **Asynchronous**  
*Students will be able to know A3/Kaizen: change for the better and define problems and solving them using small steps of everyday improvement through the scientific method.*

Saturday, 04 December

**3-7** E. Rojas **Hybrid 9:30-13:00h**  
*We will learn about telemedicine: fundamentals and basic concepts.*

**3-8** J. L. Gatica **Hybrid 15:00-18:30h**  
*The students will learn about telemedicine in isolated locations and the experience of Hospital Digital: Implementation of Telemedicine in dermatology.*

**Week 12:**

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Wednesday, 06 December

**EX** S. de la Fuente **Synchronous 18:00-20:00h**  
***Examen III***

**Week 13:**

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Monday, 11 December

**0-4** R. Martínez **Synchronous 18:00-20:00h**  
***Health Information Systems: local market and assessment.***  
*The students will be able to identify common challenges during the assessment of health information systems and basic characteristics of the local market.*

Saturday, 16 December

**S. Härtel** **Hybrid 10:00-13:00h**  
***Closing Session***