

UNIVERSITY OF ZAGREB SCHOOL OF MEDICINE

Plan of the course

**Medical Informatics**

Academic year **2016/2017**

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doc. dr. sc. Kristina Fišter

## **I. COURSE AIMS**

a. Students should familiarize with the concept and tasks of medical informatics, an interdisciplinary discipline dealing with theory and practice of information in medicine, health care and research. In parallel with these aim, students should acquaint themselves with data handling (preparing/collecting/coding/classifying etc.) – data relevant for health care practice and research,

b. Students should understand the necessity of standardization in medicine/health care, data security/data protection/data privacy and ethics in health/medical/personal information handling,

c. Students should be able to identify data/information flows in health care systems. Also, they need to understand the importance of information support in making decisions in medicine and health care,

d. Making an insight into existing ICT applications (information and communication technology based systems) students should learn how to assess appropriateness of an ICT application in health care system as well as evaluate eHealth and mHealth applications.

e. Being able to find information using Internet, students should assess its reliability of webpages of health institutions as well as those aimed for patients. They should be able to extract relevant information for presentation of a health institution/intervention/program to both health professionals, patients and general public.

f. National, European and international documents regarding health care, cross-border care, mHealth etc. (e.g. EC directive on protection of personal data, EC directive on the application of patients' rights in cross-border healthcare etc.) should be understood, particularly their information aspects.

## **II. COURSE STRUCTURE**

### **Course hours:**

Lectures: 8

Seminar: 6

Practicum: 16

**Total hours: 30**

## **III. PLAN OF THE COURSE AND COURSE SCHEDULE**

### **BLOCKS OF THE COURSE**

Number of blocks: 1

Block number	Start	End
1.	24.10.2016	4.11.2016

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### **BLOCKS OF THE COURSE SCHEME**

Block 1

Date	Time	Group	Course hours type	Theme	Teaching staff
Monday 24.10.2016.	09:00-10:30; ŠNZ A prizemlje	G1 + G2	Lectures	L1+L2 – Medical informatics and its role in medicine, health care and research ; Terminology in medical informatics; classification and coding schemes; examples of classification systems in health care	doc. dr. sc. Kristina Fišter
	10:45-12:15; ŠNZ A prizemlje	G1 + G2	Lectures	L3 – Structure and organization of data in medicine and health care; electronic health record	doc. dr. sc. Kristina Fišter
Tuesday 25.10.2016.	09:00-11:15; ŠNZ P	G1	Practicum	P1 – Health data description/preparation for ICT use, introduction to databases	doc. dr. sc. Kristina Fišter
	09:00-11:15; ŠNZ P1	G2	Practicum	P1 – Health data description/preparation for ICT use, introduction to databases	Danko Relić, dr. med.
Wednesday 26.10.2016.	09:00-12:00; ŠNZ P	G1	Practicum	P2 – Creating and using databases	doc. dr. sc. Kristina Fišter
	09:00-12:00; ŠNZ P1	G2	Practicum	P2 – Creating and using databases	Danko Relić, dr. med.
Thursday 27.10.2016.	09:00-11:15; ŠNZ P	G1	Practicum	P3 – Software support for general practice (GP information system) - evaluation of application from user's view	doc. dr. sc. Kristina Fišter
	09:00-11:15; ŠNZ P1	G2	Practicum	P3 – Software support for general practice (GP information system) - evaluation of application from user's view	Danko Relić, dr. med.
Friday 28.10.2016.	09:00-10:30; ŠNZ A prizemlje	G1 + G2	Lectures	L4+L5 – Data flow and information in medicine and health care; Standardization and medical classifications	doc. dr. sc. Kristina Fišter
	10:45-12:15; ŠNZ A prizemlje	G1 + G2	Lectures	L6 – Health information systems, decision support systems, telemedicine and system and application evaluation	doc. dr. sc. Kristina Fišter
Monday 31.10.2016.	09:00-10:30; ŠNZ P	G1	Practicum	P4 – Decision support in health care – data mining and knowledge discovery	doc. dr. sc. Kristina Fišter
	09:00-10:30; ŠNZ P1	G2	Practicum	P4 – Decision support in health care – data mining and knowledge discovery	Danko Relić, dr. med.
	10:45-12:15; ŠNZ A prizemlje	G2	Seminar	S1 – Evaluation of ICT based information systems in medicine and health care including eHealth and mHealth applications	doc. dr. sc. Kristina Fišter
Wednesday 2.11.2016.	09:00-10:30; ŠNZ P	G1	Practicum	P5 – Advanced information retrieval on Internet; e-journals and e-publications	doc. dr. sc. Kristina Fišter
	09:00-10:30; ŠNZ P1	G2	Practicum	P5 – Advanced information retrieval on Internet; e-journals and e-publications	Danko Relić, dr. med.
	10:45-12:15; ŠNZ P	G1	Practicum	P6 – Web based information – creating a web page for a health institution	doc. dr. sc. Kristina Fišter
	10:45-12:15; ŠNZ P1	G2	Practicum	P6 – Web based information – creating a web page for a health institution	Danko Relić, dr. med.
Thursday 3.11.2016.	09:00-10:30; ŠNZ P	G1	Practicum	P7 – Practical overview - presentation	doc. dr. sc. Kristina Fišter
	09:00-10:30; ŠNZ P1	G2	Practicum	P7 – Practical overview - presentation	Danko Relić, dr. med.
	10:45-12:15; ŠNZ A prizemlje	G1 + G2	Seminar	S2 – Information aspects of European and national laws and directives – implementation and examples of information usage	doc. dr. sc. Kristina Fišter
Friday 4.11.2016.	09:00-10:00; ŠNZ E	SVI	Exam	EXAM	doc. dr. sc. Kristina Fišter

#### Lectures:

L1 – Medical informatics and its role in medicine, health care and research (1h)

L2 – Terminology in medical informatics; classification and coding schemes; examples of classification systems in health care (1h)

L3 – Structure and organization of data in medicine and health care; electronic health record (2h)

L4 – Data flow and information in medicine and health care (1h)

L5 – Standardization and medical classifications (1h)

L6 – Health information systems, decision support systems, telemedicine and system and application evaluation (2h)

#### **Seminars:**

S1 – Evaluation of ICT based information systems in medicine and health care including eHealth and mHealth applications (2h)

S2 – Information aspects of European and national laws and directives – implementation and examples of information usage (2h)

#### **Practices:**

P1 – Health data description/preparation for ICT use, introduction to databases (3h)

P2 – Creating and using databases (4h)

P3 – Software support for general practice (GP information system) - evaluation of application from user's view (3h)

P4 – Decision support in health care – data mining and knowledge discovery (2h)

P5 – Advanced information retrieval on Internet; e-journals and e-publications (2h)

P6 – Web based information – creating a web page for a health institution (2h)

P7 – Practical overview - presentation (2h)

Seminars and practicals will take place in Computer classrooms P and P1 at the Andrija Štampar School of Public Health, Rockefeller St. 4 (computer lab in basement)

## **IV. EXAMINATIONS**

### **Types of examination and examination dates**

*Continuing examination:* after each of practices (without grade, but success or fail only) – all the practices should be graded as success.

*Written exam:* 30 multiple choice questions, 60 minutes,

*Final examination:* Oral exam

How to evaluate the written exam: Right answer: 1 point (per question) - max 30 points Getting bonus for written examination: possible, depending on student's activities during the seminars (1-2 points could be added to final written exam – exclusive lecturer's power of decision).

Final grade takes both grades into account (written and oral exam grade).

Written exam will be held on 4 November 2016 (regular term)

Additional terms will be in July and September 2017, if necessary.

## **V./I. LIST OF LECTURERS AND TEACHING STAFF**

1. doc. dr. sc. Kristina Fišter
2. Danko Relić, dr. med.

#### **V./II EXTERNAL ASSOCIATES:**

#### **V./III UNTENURED LECTURERS:**

#### **VI. LITERATURE**

##### **A. Obligatory**

1. Medical Informatics (compiled by J.Kern, K.Fišter, J.Božikov). (<http://lms.mef.hr>)
2. Selected papers from the medical informatics journals (papers)
3. Handouts for practicals (<http://lms.mef.hr>)

##### **B. Recommended readings**

1. Hoyt R, Sutton M, Yoshihashi A. Medical Informatics: Practical Guide for the Healthcare Professional 2007. Lulu.com 2007. (book)
2. Kern J: Standardization in Health and Medical Informatics. In: Lazakidou AA (Ed). Handbook of Research on Informatics in healthcare and Biomedicine. Hershey – London – Melbourne – Singapore: Idea Group Inc. 2006. pp. 44-50. (book chapter)
3. Kern J. Croatian Experience in Health Information System Development – what we have and what we need? AIM 2010;18(3):147-150. (paper)
4. Kern J, Fišter K, Polašek O. Active Patient Role in Recording Health Data. In: Mehdi KhosrowPour M (Ed). Encyclopedia of Information Science and Technology (Second Edition). Hershey – New York: Information Science Reference 2009. pp. 14-19. (book chapter)
5. Taylor P. From patient data to medical knowledge: the principles and practice of health informatics. Oxford: Blackwell Publishing Ltd 2007. (Optional).