Utrecht University

Faculty of Science
Department of Information and Computing Science
Master of Business Informatics

Seminar Medical Informatics

Kick off & Introduction

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Agenda for today

- **Who are we?**
- **Goals and structure of this seminar**
- **Schedule and rules**
- **Passing and grading**

Your lecturer

Verónica Burriel Coll
v.burriel@uu.nl

Background

- High School Degree in Health Sciences
- Computer Science Engineering
- Master in Biomedical Engineering
- PhD in Health and Welfare Technologies

Motivation

- Informatician who loves life sciences
- Lack of a proper application of IS technology into clinical and biological domains

Objectives

- Improve clinical and biological data management
- Help clinicians and researchers to analyze data in a efficient and easier way

Your lecturer

Verónica Burriel Coll
v.burriel@uu.nl

Experience in Academia

- **Collaboration in research grant (2009-2011)**
  PROS: Research Center in Software Production Methods
  Polytechnical University of Valencia (Spain)

  Master Thesis: “Management of mutations in genomic environments: a perspective based on Conceptual Models” (March 2010)

- **Research contract (2011-2017)**
  PROS: Research Center in Software Production Methods
  Polytechnical University of Valencia (Spain)
  Project Manager of Information Systems for Health

  PhD Thesis: “Design and Development of an Information System for Breast Cancer Data Management” (July 2017)

- **Lecturer (2018 – now)**
  Utrecht University – Applied Data Science Lab
  - Life Sciences and Health Informatics (Bachelor p4)
  - Seminar Medical Informatics (Master p3)

Your lecturer

Verónica Burriel Coll
v.burriel@uu.nl

Centro de Investigación en Métodos de Producción de Software

UNIVERSITAT POLITÈCNICA DE VALÈNCIA

Utrecht University

Research projects

- 2009 - “Integration of a BLAST search engine to an application for the analysis of genomic sequence variations”
- 2010 - “Clinical information system for the management and exploitation of data from Usher Syndrome patients”
- 2010 - “Incorporation of genetic information into the electronic medical record (EHR) through Conceptual Models”
- 2011 - “FUTURE CLINIC – Preparation of the scenario of Personalized Medicine”
- 2013 - “SINB: Design and implementation of an Information System for the management of clinical, biological and evolutionary data on Neuroblastoma”
- 2013 - “TROMBORISK- Risk prediction model of venous thrombosis combining polymorphic profiles and functional effects in the hemostatic system.”
- 2014 - “Design and Development of an Information System for the Efficient Management of Data about Breast Cancer in Young Women.”
- 2014 - “IDEO - Innovative services for Digital Enterprises with ORCA”
- 2017 - “DATAME - A model driven software production method for the development of Big Data applications”
- 2017 - “Multicenter project of multidisciplinary training about cancer treatment and application of the Electronic Clinical Record (EHR) in order to integrate the clinical-molecular data and guide the therapeutic strategy”
- 2017 - “Multicenter project to determine the mutational profile of patients with cancer of solid tumors to guide the therapeutic strategy towards personalized medicine”
- 2017 - “OPTIMA - Technological support to Antimicrobial Optimization programs”
- 2017 - “Data Science approach for Citrics Genome”

Who are you?

- **Your name and nationality**
- **Your study and background**
- **Your interest in health and/or medical informatics**

Goals of this seminar

- **I. Learn how informatics is applied in medical and biomedical fields and how it helps to improve prevention, diagnosis and treatment of different diseases and also to health care and wellness.**

- **II. Research about existing medical informatics solutions and those that are currently under development, and propose and design you own solution to a real medical problem.**

Goals of this seminar: part I

I. <u>Learn</u> how informatics is applied in medical and biomedical fields and how it helps to improve prevention, diagnosis and treatment of different diseases and also to health care and wellness.

- What are the main areas of action of medical informatics?
- How can medical informatics improve…
  …prevention?
  …diagnosis?
  …treatment?
  …health care and wellness?
- What benefits do it offer to medical professionals and patients?

LECTURE SESSIONS

Goals of this seminar: part II

- **II. <u>Research</u> about existing medical informatics solutions and those that are currently under development, and propose and design you own solution to a real medical problem.**

- What medical informatics solutions are being used in medical field?
- What are the challenges that researchers in medical informatics are currently facing?
- What are the medical informatics solutions in development nowadays?

WORKSHOP SESSIONS

Seminar structure

- Lecture sessions
- Workshop sessions
- Final project

Lecture sessions

- Lectures about the defined topics
- Guest lectures of experts in the field
- Some questions to the audience, discussions and exercises

Workshop sessions

- **5 presentations of solutions related to the topic**
- **Discussion about the solutions presented**
- **Activities prepared by the students about the solutions**

Final project

Write a research proposal of an invented Mobile App for health (in pairs)

- Choose a disease or health condition which could be improved by using a mobile App
- Design and develop a prototype of your own mobile App
- Write a scientific paper describing your proposal
- **Milestones:**
  - Mid-term submission
  - Peer-review assessment
  - Mobile Apps presentation
  - Final submission

Schedule part 1: Week 7-11

Week	Monday 15:15 – 17:00 BBG 020	Workshop	Tuesday 13:15 – 15:00 HFG-611AB	Lecture
7	**February 11**	**Introduction to the course**	**February 12**	Medical informatics and the health care sector
8	**February 18**	**Lecture:** mHealth: Mobile Apps for Health	**February 19**	Guest talk: Mobile Apps for Health
9	**February 25**	mHealth solutions	**February 26**	Electronic Health Record + Guest talk: Report2Care
10	**March 4**	EHR solutions	**March 5**	Telemedicine and Medical Images
11	**March 11**	Telemedicine solutions	**March 12**	Data Science in health care + guest talk

Schedule part 2: Week 12-15

Week	Monday	Workshop	Tuesday	Lecture
12	March 18	Data Science solutions	March 19	Bioinformatics and Precision Medicine
	Wednesday March 20, 5 PM	**Paper mid-term submission**		
13	March 25	Bioinformatics solutions	March 26	**Multiple-choice quiz**
	Wednesday March 27, 5 PM	**Paper students assessment**		
14	April 1	**Mobile Apps presentations**	April 2	**Mobile Apps presentations**
15	*Friday April 12, 5 PM*	**Paper final submission**		

Workshop sessions schedule

Fill the form https://goo.gl/forms/Fxn6YpMGbkPtxxZM2 **before February 12th at 16.00** with your preferences (sort them by order of preference) and schedule restrictions (if any):

- Mobile Apps for Health
- Telemedicine
- Electronic Health Record
- Data Science in health care
- Bioinformatics

NOTE: In order to follow the GDPR regulations, please **use your SMI ID instead of your name**. To know your SMI ID check the Students' list available in this Blackboard side.

Workshop preparation procedure

Each assigned student:

1. **Select a paper** of maximum 8 pages describing a solution of the technology exposed during the lecture and send it to v.burriel@uu.nl **before Wednesday at 13.00.** During the afternoon all selected papers will be published on course's website.

2. **Prepare a presentation** of **7 minutes** about the paper and include some questions (at least 2) at the end of the presentation to challenge the audience and activate the discussion.

3. Join with the other assigned students and **prepare 1 or 2 group activities** to make during the last 30 minutes of the session. This activities should be related to the solutions presented. Use your imagination and ask for some advice of your teacher if needed.

Each no-assigned student:

1. **Read all the selected papers** and **prepare some questions or comments** (at least 2) per paper for the discussion. These questions will be send by form **before Monday**.

Passing and Grading

Attendance

- 75% attendance is required (you only can miss 3 sessions)

Workshop presentations *(20%)*

Multiple-choice quiz*(10%)*

Final project *(70%)*

Paper of an invented Mobile App for health (in pairs) *(50%)*

Mobile App presentation (in pairs) *(20%)*

Passing and Grading

Workshop presentations

- Grade = 20%
- Presentation (8%) + group activities (6%) + discussion participation (6%)
- Required to pass the course
- No second chance

Multiple-choice quiz *(March 26th)*

- Grade = 10%
- No retake opportunity if grade is lower than 4.0 or higher than 6.0
- At least 6.0 to pass the course (5.99 is not enough)

Passing and Grading

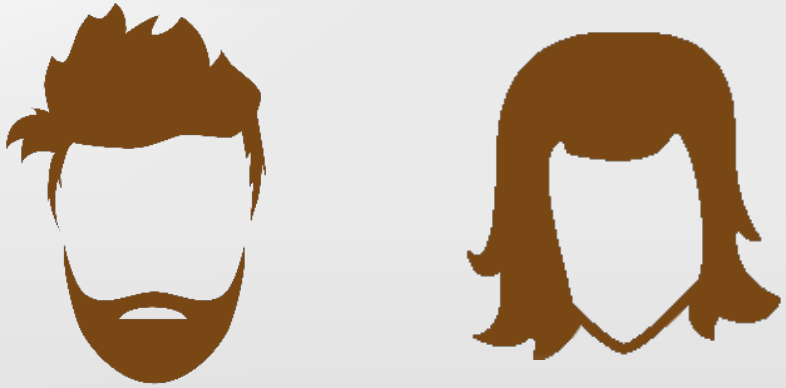
Write a paper of an invented Mobile App for health (in pairs)

- Mid-term submission ***(March 20th, 5 PM)***
  - Grade = 20% (10% 2 students assessment + 10% your assessment of a paper)
- Final submission ***(April 12th, 5 PM)***
  - Grade = 30%
- No retake opportunity if grade is lower than 4.0 or higher than 5.5

Mobile App presentation (in pairs) ***(April 1st and 2nd)***

- Grade = 20% (10% students grade and 10% teachers grade)
- Attendance to both sessions is required to get the students grade
- Required to pass the course
- No second chance

Please, send me your photo!



Contact and questions

v.burriel@uu.nl

Visits (upon email request):
Buys Ballot building, room 579
Thursdays and Fridays from 10.00 – 12.00

Course website:
https://uu.blackboard.com/webapps/blackboard/execute/courseMain?course_id=_117578_1