HEALTH ANALYTICS **EDUCATION AT SAMK**

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TAMPEREEN TEKNILLINEN YLIOPISTO





SATAKUNTA UNIVERSIT APPLIED SCIENCES (SAMK) **OPERATES ON** THE WEST **COAST OF FINLAND**

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STARTING POINTS for the Project & Education Program...

1) The Big Data Challenge





2) FINNISH GOVERNMENT KEY PROJECT ON HEALTH AND WELLBEING

OBJECTIVES:

- Customer-responsive services
- Health and wellbeing will be fostered and inequalities reduced
- Programme to restructure child and family services
- Home care for older people will be developed and better informal care for all age groups
- Career opportunities for people with impaired work capacity



Focus on required competences → Kyle Mulholland's presentation later today Sam

IMPLEMENTATION in collaboration with working life partners

Steering Committee:

Andrew Sirkka (SAMK), Sari Merilampi (SAMK), Tarmo Lipping (TTY), Madis Tiik (Sitra/TTÜ), Peeter Ross (TTÜ), Doris Kaljuste (TTÜ), Tuula Tiihonen (Sitra), Johanna Perälä (Sitra).

Working Life Committee:

Marja-Leena Alho (Head of Services Department, Rauma hospital), Kaija Antola (medical director, POSA), Ari Salmela (chief administrative medical officer, Satshp) Silja Iltanen (service manager, Satshp), Anne Kuusisto (Head of RDI, Satshp), Leena Ollonqvist (Chief information officer, Satshp), Kristiina Puolakka (Nursing Officer, Satshp), Anu Holm (clinical physicist, Satshp), Tarmo Lipping (professor,TTY), Pirjo Rehula (Change Agent, Porin perusturva), Marjut Riikonen (Care Manager, Porin perusturva), Sari Merilampi (principal lecturer, SAMK), Andrew Sirkka (principal lecturer, project manager, SAMK).







Other Collaboration parties:

Duodecim/ CareGap; ODA-project; Vivago; Klinik.fi; BuddyHealthcare; <u>https://mewethome.com/</u>; Datatiede.fi





MULTIMETHOD EDUCATION

- Weekly tutorial classes
- Video lectures & student assignments in Moodle elearning environment
- Intensive Programmes
- Service & tech demos
- Seminars & workshops
- Multiprofessional joint classes
- Close collaboration with Companies, Service Provider Organisations & Projects

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HEALTH ANALYTICS & CLINICAL DECISION SUPPORT (BY TAMPERE UNIVERSITY OF TECHNOLOGY)

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I. Decision Support in Healthcare

An overview of clinical decision support systems in patient care is given. The course consists of 8 thematic lectures (in video form), presentations of several CDS systems or healthcare applications involving decision support as well as a hands-on workshop of the CareGap tool for care benefit assessment.

- Short history and common functions of Clinical Decision Support systems (lyhyt katsaus kliinisten päätöksenteon tukijärjestelmien kehitykseen)
- Evaluation of the effectiveness of CDS systems (kliinisten päätöksenteon tukijärjestelmien vaikuttavuuden arviointi)
- Position of CDS in patient care (kliinisten päätöksenteon tukijärjestelmien kytkökset muihin terveydenhuollon tietojärjestelmiin)
- Knowledge base of CDS systems: incorporating expert knowledge (kliinisten päätöksenteon tukijärjestelmien tietoperusta; seurataan lääkäreiden itsekseen puhumista, miten päätöksenteko toimii)
- Knowledge baseof CDS systems: big data and personalization (kliinisten päätöksenteon tukijärjestelmien isot tietomassat; big data ja yksilöllistäminen)
- Adoption of CDS in patient care (kliinisten päätöksenteon tukijärjestelmien soveltaminen hoitoprosesseihin)
- Legal and ethical issues of CDS (lainsäädäntö ja eettiset näkökulmat)

• Consumer CDS systems (laajalle yleisölle suunnattuja päätöksentekojärjestelmiä)

Presentation of CDS systems: Hands-on workshop with CareGap (Terveyshyötyarvio) week 46/ viikolla 46 by Dr Ilkka Kunnamo, Duodecim

II. Decision support technologies in CDS systems

The aim in this course is to introduce the terminology and principles underlying statistical analysis in clinical studies and to give a brief overview of the main types of decision-making technologies used in CDS systems. The course will contain 10 thematic lectures (in video format).

PART1: Basics of statistical analysis

- Collecting data for clinical and healthcare studies (tutkimusasetelmien rakentaminen, vääristymät)
- Data description and visualization; Probability ja probability distributions (todennäköisyyslaskenta, miten potilasaineistoja visualisoidaan, kuvataan)
- Analysis and comparison of population central values (miten verrataan verrokki/manipulaatioryhmiä)
- Analysis of variance (verrataan hajontoja yleisellä tasolla)

PART2: Decision support techniques

- Bayesian methods (päätöksenteon tukijärjestelmien pohjalla olevat ajattelumallit)
- Expert systems (asiantuntijajärjestelmät)

- Tree structures (puurakenteet)
- Logistic regression (logistinen regression; kuvataan piirteet piireavaruudessa; regressioviiva opituista tapauksista auttaa luokittelussa tai diagnosoinnissa)
- Neural Networks and learning methods (hermoverkot, miten yleisesti toimivat)
- Examples of decision support technologies in CDS systems (esimerkkejä päätöksenteon logiikoista)

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LEARNED ABOUT VARIOUS WAYS, TO The Finrisk calculator The Finland. It will calculator **OBTAIN & VISUALISE DATA...** https://www.thlfilen/web/chronic-

Perform a Virtual Health Check to yourself

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Your own data		Your risk of getting disease	
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...AUTOMATE PATIENT JOURNEYS ...



...SIMPLIFY WORK FLOWS...

Comprehensive browser dashboard for nurses and doctors

- Manage all the care protocols and pathways in the same system.
- Monitor your patients' preparation and recovery procedures including milestones, symptoms, milestones and photos.
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... UTILISE AI SOLUTIONS...



BioMediTech

Discoveries and innovations for life

Automated image analysis for decision support in digital pathology



pekka.ruusuvuori@tut.fi @PekkaRuusuvuori

WORKING ON LEARNING ASSIGNMENTS

(some examples)

	Theme	lanation				
	eHealth & Telehealth	 Situational Analysis of current use of eHealth & Telemedicine in the student's working environment: Current situation/ technology in use Future PROSPECTS identified 				
	Decision Support in Healthcare	 Define and describe the quality indicators to measure the quality of the treatment. Plan how to implement/ evaluate the Health Benefit Assessment app at your own workplace. 				
	Decision Support Technology	 Define the data related to your own work and apply it in analysis / visualization using the methods presented in the course 				
	Customer Engagement	 Choose one customer group whose care and service processes you participate in and could develop. Review customer services and policy practices from both customer and service provider(s) point of view. The themes to be analysed: 1) BACKGROUND INFORMATION (on treatment, decision making, health status) 2) DECISION-MAKING ATMOSPHERE IN REGARD WITH CUSTOMER ENGAGEMENT 3) DECISION-MAKING PROCEDURES 4) MEASUREMENTS 				
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CUSTOMER ENGAGEMENT & SERVICE DESIGNING

Explanation

The aim:

- getting familiarised with health data analytics in one's own working environment
- identifying variety of data available,
- collecting and analysing data,
- making service design type of analysis or process mapping on how the data could be better utilized in customer-centred services.
- As outcome of the pilot phase the student provides a written report of health data analytics implementation as part of HEAP project outcomes.

THAT DEPENDS ON WHAT YOU MEAN BY "DOES," "IT DOES AND "WORK" IT WORK? Statistically-Funny.blogspot.cor

THINGS GOT REALLY INTERESTING WHEN THE STATISTICIAN STARTED DOING WARD ROUNDS

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An example presented by Minna Ampio later today

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Sector	Theme	Analytics
Psychiatric Nursing	Vivago activity monitoring system as means supporting psychiatric nursing care	Vivago activity data analysis to focus & intensify care activities
Primary care	Data analysis of patients admitted with diagnosis "Cannot manage at home"	Admission data analysis to improve patient's care path
	Case Manager activities in Health Benefit Model	Data analysis of health benefits achieved, documented, assessed; Virtual Health Check Tool (Duodecim)
Rehabilitation	Promotion of Health & Wellbeing (HyTe) program – 6 month intervention analysis	Effica, Virtual Health Check Tool (Duodecim)
Day hospital	Robotics to support data extraction & referral processes of patients directed into day hospital	AI, indicative data analysis, coordination of patient information & operative measures in the unit
Neurophysiology	National recommendations for examining the brain function, nervous system and muscle activity	Mapping the clinical practices in neurophysiological units nationwide



TO FINALLY SHOWCASE EVIDENCE FOR EVALUATION OF THE EDUCATION & PROJECT

- 1) Achievement of project objectives (qualitative & quantitative)
- 2) Completion of Education Material
- 3) Completion of studies (student credit points, achievements, activities)
- 4) Student Feedback
- 5) Working Life Committee and Steering Committee feedback
- 6) Sustainability
- ➔ specialisation education programmes:
 - a. emphasis on analytics;
 - b. emphasis on health coaching & care management
 - ➔ Further Collaboration and networking
 - -TTÜ, TTY, SAMK
 - -UAS collaboration on specialised education
- 7) Dissemination of project outcomes

- -intensive programmes and seminars
- -articles, events
- -publication on project contents and lessons learned



THANK YOU FOR... ...Your attention ...Your support ...Walking alongside with us this far!

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