

Education and Culture DG

Master programme in Applied Statistics at University of Novi Sad

June 18, 2013

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University of Novi Sad (UNS)

- ◆ Founded in 1960
- ◆ 14 Faculties
- ◆ 46.000 students
- ◆ Located in 4 cities
- ◆ 3.000 teaching staff
- ◆ 1200 non-teaching staff
- ◆ 300 study programmes



Faculty of Science UNS

- ◆ **Founded in 1969**
- ◆ **Consists of 5 departments**
 - **Biology and Ecology**
 - **Chemistry**
 - **Mathematics and Informatics**
 - **Geography**
 - **Physics**

- ◆ **5000 people: students, teachers and non-teaching staff**

- ◆ **256 researchers in Mathematics, Informatics and Natural Sciences**

- ◆ **71 laboratories, 24000 m²**



Department of Mathematics and Informatics

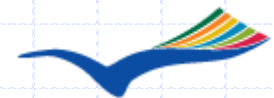
- ◆ Math. founded in 1954 within the Faculty of Philosophy
- ◆ Inst. of Math. founded in 1976
- ◆ 600 students
- ◆ 80 teachers



Tempus project "Master program in Applied Statistics"

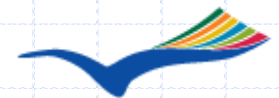
Project objective:

- ◆ To develop and implement a master curriculum in applied statistics in line with existing European study programmes and according to Bologna requirements.
- ◆ To organize a lifelong learning programme in applied statistics for professionals in different fields.



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- ◆ Duration: 3 years
15 October 2010 – 14. October 2013
- ◆ Budget around 600 000 Euro
- ◆ <http://stat.uns.ac.rs>

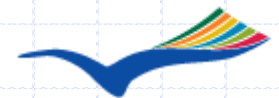


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Project partners:

EU partners:

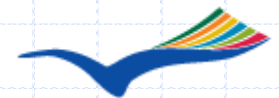
- ◆ Eötvös Loránd University, Budapest, Hungary
- ◆ Università degli Studi del Sannio, Italy
- ◆ Universidad de Oviedo, Spain
- ◆ University Mateja Bela, Slovakia
- ◆ University of Ljubljana, Slovenia
- ◆ WU Vienna University of Economics and Business, Austria



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Partners from Serbia

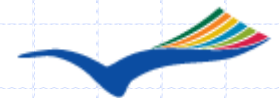
- ◆ University of Novi Sad (coordinator)
- ◆ University of Belgrade
- ◆ University of Kragujevac
- ◆ University of Niš
- ◆ State University of Novi Pazar



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Non-academy partners:

- ◆ Republic Statistical Office
- ◆ National Bank of Serbia



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Main activities

- Analysis of best practise at partner universities and comparative analysis of status in the field
- Defining learning outcomes and competences
- Development of the programme, syllabi of all the courses and the modules and ECTS
- Defining and providing necessary literature, software and computer equipment


◆ Workshops in Serbia concerning methodology

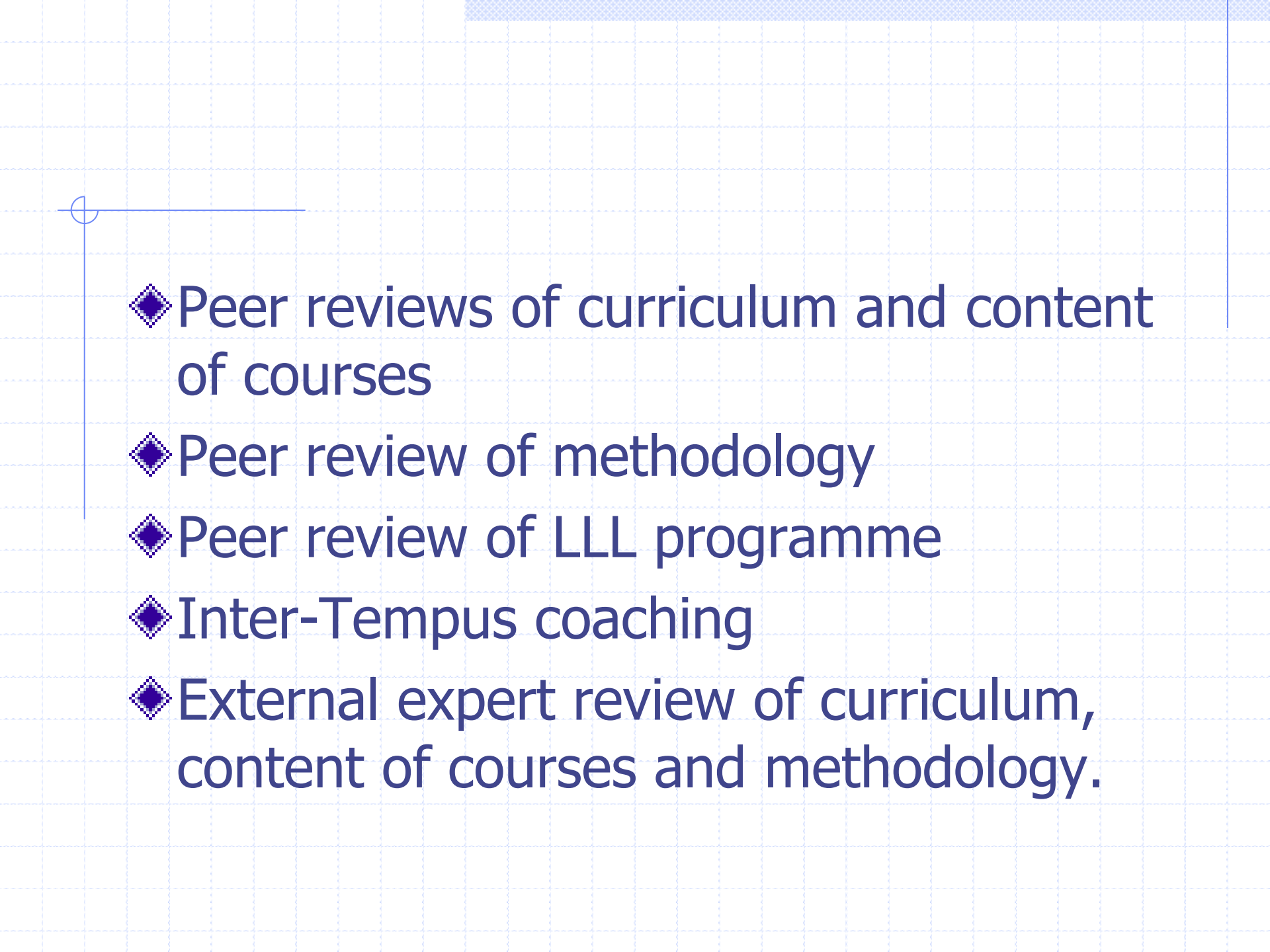
◆ Preparation of the Guide in methodology for the new study programme

◆ Study visits of staff from Serbia to EU

◆ Preparation of the courses and teaching material

◆ Preparation of the LLL programme

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- ◆ Accreditation of the new study programme
 - ◆ Implementation of the new master programme
 - ◆ Implementation of LLL programme
 - ◆ Feedback and final analysis

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- ◆ Peer reviews of curriculum and content of courses
 - ◆ Peer review of methodology
 - ◆ Peer review of LLL programme
 - ◆ Inter-Tempus coaching
 - ◆ External expert review of curriculum, content of courses and methodology.

- ◆ Development of the web site
- ◆ Preparation of study “Statistics all around us” and other promotional material
- ◆ Organization of series of lectures for students on bachelor studies
- ◆ Organization of one-day seminars for presentation of LLL programme to people working in different fields
- ◆ Organization of a dissemination conference

Master programme in Applied Statistics

- New curriculum is prepared at University of Novi Sad, Belgrade and Nis (master curriculum, 2 years)
- Interdisciplinary study program
- The program at University of Novi Sad passed the accreditation on 14. October 2011
- The second generation of students enrolled the program in 2012/13 school year at University of Novi Sad.

- ❖ The programme have got quota of 20 students on the budget of the state
- ❖ + 5 students co-financing (during Tempus project duration NO co-financing students)

New study programme

- ◆ Study program Applied statistics lasts two years (120 ECTS).
- ◆ It consists of four modules: biomedicine, economics, social sciences and engineering.
- ◆ In order to apply for the programme, a candidate should have completed the first stage of any academic studies with at least 180 ECTS points, to have basic knowledge in mathematics and computer science and to use English.

- ◆ Entering exam (90 questions)
- ◆ 100 points in ranging:
10 (mark at previous study)+
90 (success at the entering exam)
- ◆ condition: 50% points at the exam



◆ Applied statistics education

Student competences:

- statistics in the narrow sense,
- substantive knowledge,
- communication skills
- IT skills.

MASTER ACADEMIC STUDIES: APPLIED STATISTICS

Obligatory courses:

- ◆ 1 Probability theory and principles of statistics 8 ECTS 3+3
- ◆ 2 Theory of estimation and detection 6 ECTS 3+2
- ◆ 3 Statistical software 4 ECTS 1+2
- ◆ 4 Methodologies for data collection 6 ECTS 2+2

- ◆ 5 Sampling theory 6 ECTS 2+2
- ◆ 6 Introduction to linear models 8 ECTS
3+2
- ◆ 7 Multivariate analysis 6 ECTS 2+2
- ◆ 8 Official statistics 6 ECTS 2+2



◆ Elective

◆ 1. Linear Algebra and Calculus

◆ 2. Elements of Economics

◆ 3. Introduction to Social medicine

◆ 4. Introduction to Psychology

◆ 6 ECTS 3+1

MODULE Economy:

- ◆ Econometrics I 6 ECTS 2+3
- ◆ Financial Models 6 ECTS 2+3
- ◆ Econometrics II 6 ECTS 2+3

MODULE Engineering:

- ◆ Monte Carlo and computational methods in statistics 6 ETCS 2+3
- ◆ Applied Statistics in Measurement Systems 6 ECTS 2+3
- ◆ Methods for Quality Management 6 ECTS 2+3

MODULE Medicine:

- ◆ Biostatistics 6 ECTS 2+3
- ◆ Survival analysis 6 ECTS 2+3
- ◆ Epidemiology 6 ECTS 2+3

MODULE Social Sciences:

- ◆ Analysis of categorical data 1 6 ECTS
2+3
- ◆ Structural equations 6 ECTS 2+3
- ◆ Advanced linear modeling 6 ECTS 2+3

Electives

- ◆ Bayesian statistics
- ◆ Data analysis and neural network
- ◆ Longitudinal method
- ◆ Analysis of categorical data 2
- ◆ Data envelopment analysis 6 2+3 I 3
- ◆ Design of experiments

Student practice:

- ◆ Part I: Academic skills
- ◆ Part II: Practice in the institutions and development projects

- ◆ Master thesis 24 ECTS

Realization of the program joint effort of 8 faculties

- ◆ Faculty of Sciences: Dept. of mathematics and informatics
- ◆ Faculty of Economics: Dept. of Business Informatics and Quantitative Methods
- ◆ Faculty of Medicine : Dept. of Social Medicine and Health Statistics with Informatics
- ◆ Faculty of Technical Sciences: Dept. of Fundamental Disciplines

- ◆ Faculty of Agriculture: Dept. of Agricultural Economics and Rural Sociology
- ◆ Faculty of Philosophy: Dept. of Psychology
- ◆ Faculty of Technology: Dept. of General Engineering Disciplines
- ◆ Faculty of Sport and Physical Education

University Center of Applied Statistics at UNS

Activities of the Center

Education:

- ◆ academic masters study in applied statistics
- ◆ courses in applied statistics
- ◆ LLL courses
- ◆ help in teaching in applied statistics at the University

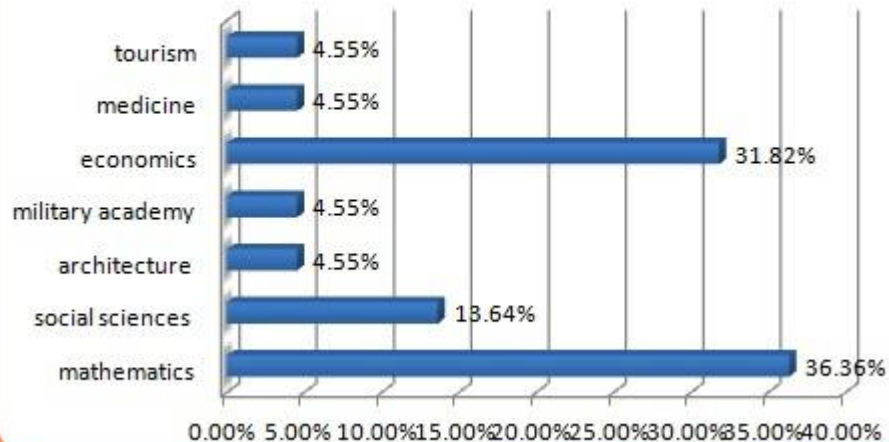
Research

- ◆ application of statistics in scientific research
- ◆ consultations in the preparation of the final work (master and doctoral thesis)

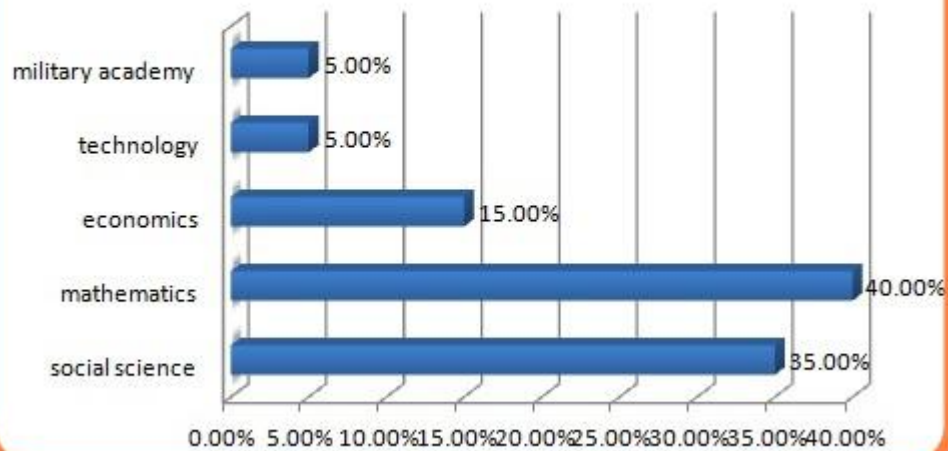
Consulting

- ◆ cooperation with industry, the community ... (data and expert analysis)

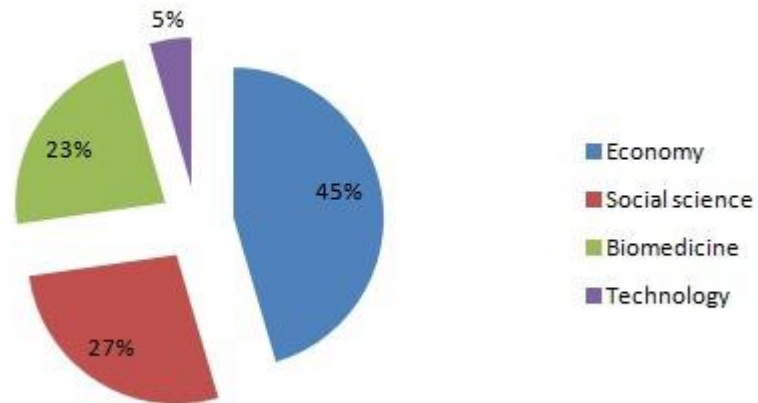
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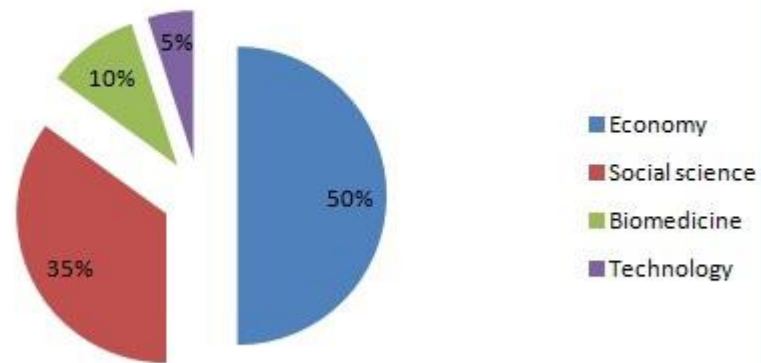
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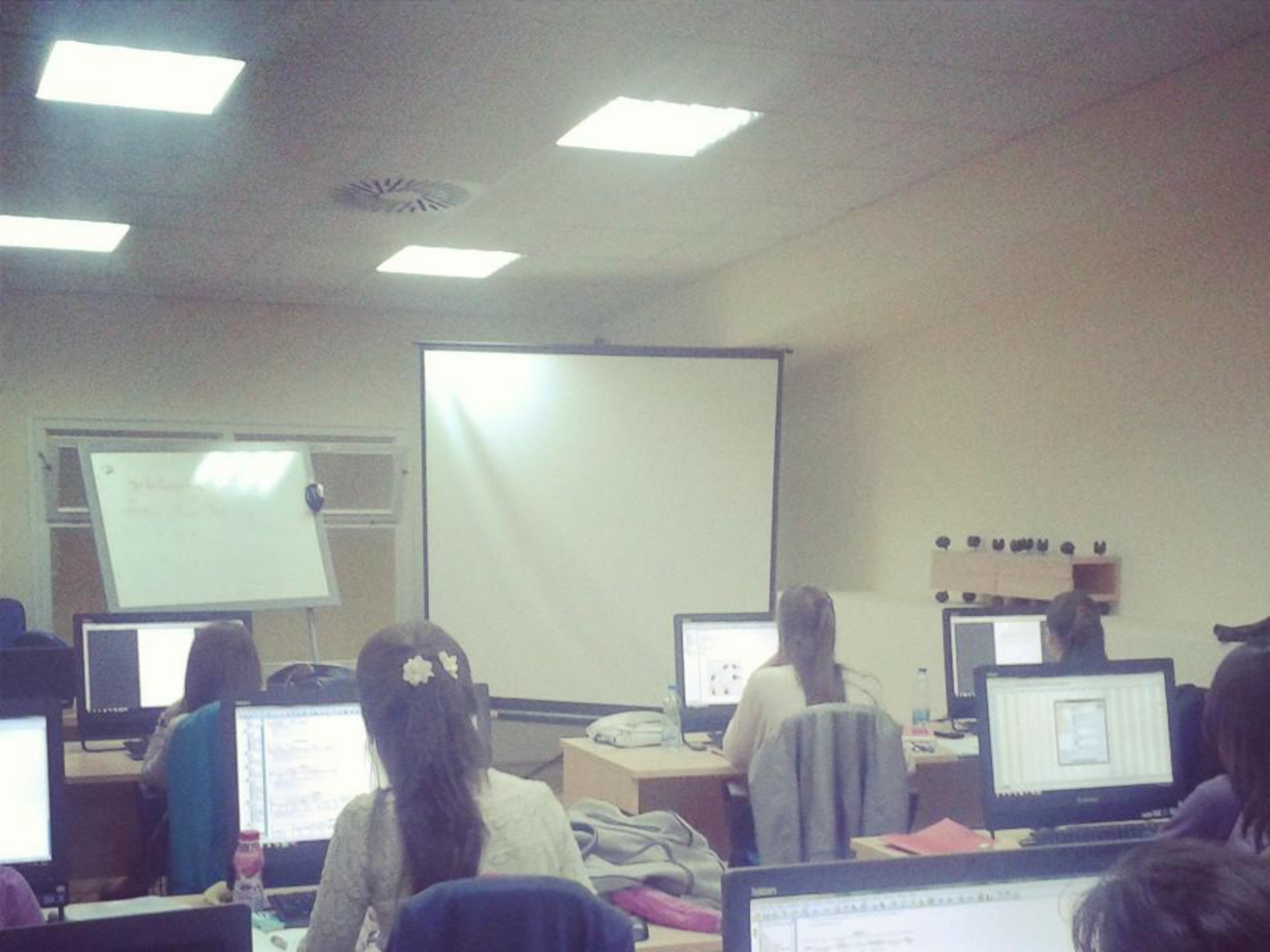
Selected modules - 2011/2012



Desired modules - 2012/2013









Thank you for your attention!

