Social Sciences and Computing:
Master study program review

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The graduate study program Social Sciences and Computing at the University of Belgrade is developed as part of the Tempus project INCOMING (Interdisciplinary Curricula in Computing to Meet Labor Market Needs, project No. 530155-TEMPUS-1-2012-1-EE-TEMPUS-JPCR). The program is designed as a continuation of undergraduate studies in a field of the broad study area of social sciences (economics, sociology, psychology, law, finance, management, languages, and so on, or a combination of some of these fields), but with a focus on application of modern computer technology in these fields.

Studying in this study program assumes that the students have already acquired some knowledge in a subset of these social sciences. It is also understood that students already have a basic knowledge of computer technology and that they are familiar with the basics of using computers and the Internet. Through the graduate study program Social Sciences and Computing, students are introduced to some of the more advanced techniques of using computers and the Internet, but always through application in a selected field of social sciences. A wide variety of courses offered allows each student to focus on the social science(s) that she/he is most interested in.

1   The program at a glance

It is a 60 ECTS, 1-year program, structured in such a way that students take courses in the Spring semester (typically 5 courses, 30 ECTS altogether), and then work on their term paper (qualification paper, 10 ECTS) and master's thesis (20

ECTS). Graduates from this study program receive the title Master of Computing in Social Sciences.

The program is modeled after a number of similar programs from EU and North American universities. Thus it has a strong flavor of quantitative disciplines and statistics, interwoven with numerous topics from the broad fields of social sciences and computing. There are two required courses:

 – Contemporary computer technologies;
 – Quantitative modeling in social sciences.

They are prerequisites for a wide spectrum of elective courses:

 – Social network analysis;
 – Data analysis and visualization;
 – Demography and new information technologies;
 – Research methodology and statistics;
 – Introduction to cognitive linguistics;
 – Digital humanities;
 – Digitalization and transdisciplinarity in humanities;
 – Programming for linguists;
 – Legal and ethical aspects of ICT;
 – Cybercrime;
 – Quantitative methods in economics;
 – Prediction and decision methods;
 – ICT and sustainable development;
 – Measuring information society;
 – Security investment analysis;
 – Technology enhanced learning;
 – Computer science and music;
 – Digital libraries;
 – Application of information theory on language processing;
 – Social psychology of cyber space;
 – Applications of sampling theory in social sciences;
 – Regulation of content and freedom of expression on the internet;
 – Human resource development and ICT;
 – Knowledge management and ICT;
 – Risk management in actuarial science;
 – Application of information systems in financial mathematics;
 – Digitalization and traductology.

There are no formal restrictions in choosing electives, but the students are expected to demonstrate some proficiency in the broader field related to an elective they choose.

The program was launched in February 2015. Although at the time of writing this review (Early September 2015) no student has graduated from the program yet, all the courses have been already given to the first generation of students and most of the students have already passed the exams. Hence it was possible to do evaluations of the program (at the end of the Spring semester) and generate related statistics.

2   Teachers' view

One thing that most of the teachers who participated in the program in Spring 2015 (about 50 teachers altogether) have emphasized as a strong upside of the program was motivation of the students who have attended the classes. The teachers were happy to have good students, eager to learn new things, hardworking and very active during the classes. It is a common impression of most teachers that the students were capable of grasping the new topics very quickly. This is probably no wonder at all, since the students enrolled in the first generation (36 students) have come with extremely good GPAs from their BA programs. Given the fact that many students did not have previous knowledge in statistics and quantitative disciplines, and that their knowledge of computing was in many cases limited to standard office programs and Internet browsers, all the courses given went very smoothly, the teachers say.

An obvious downside was the heterogeneity of the students' previous knowledge, which has necessitated splitting the students in some of the classes in two groups (absolute beginners and those with minor experience with the course topics). Luckily, this has been compensated by enthusiasm from both the teachers' and the students' side, as well as by the fact that in most courses there were at least two teachers.

3   Students' view

In the online evaluation form that the students were asked to fill out in the end of the first semester, there were questions about:

 – the quality of the courses given (the knowledge acquired and how useful the students perceive it, the compliance with the announced course syllabi, the perceived compliance with similar master programs in well-ranked universities worldwide, the use of modern teaching approaches and tools, the teaching materials and resources (literature, software, ...) available to students, online or in hard copy);

- the perceived relevance of the degree received by completing this study program;
- the perceived quality of the teaching and pedagogy demonstrated by the teachers;
- how well is the study program adapted to the level of mastery of computing typical for students who have majored in social sciences;
- the quality of the facilities (teaching rooms, equipment, Internet, ambient, ...);
- the demonstrated level of responsiveness and cooperation demonstrated by teachers and administrative staff alike.

20 students (out of 36) have submitted their evaluations. In all questions, they were supposed to answer using a 5-point Likert scale (5 being the highest grade). They were also allowed to write free-form comments.

It felt good to find out that the students liked the program in their evaluations. The mean values obtained in all answers were always higher than 2.5, and often higher than 3 as well. Figure 1 illustrates some of the evaluation results.
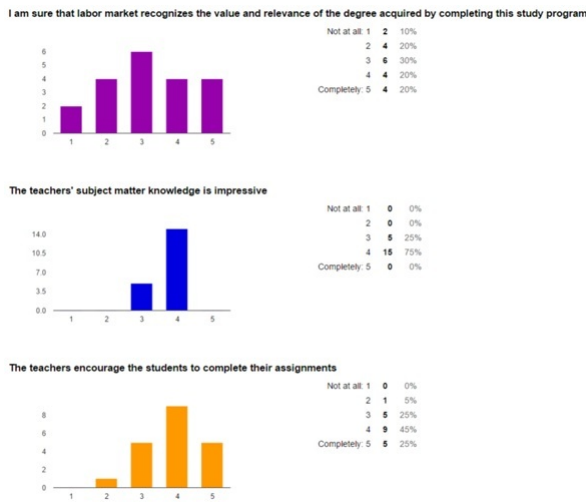

Figure 1. Some of the students' responses

The students have highly appreciated the fact that the program offered the possibility for gaining many practical computing skills, and saw it as a distinctive feature of the program. Therefore, this program appeared to be a suitable "plug in" to the broad theoretical and practical knowledge in different fields of social sciences that the students have received their BA degrees from. The opportunity to learn how to

use many software applications in various fields of their interest was the most important outcome. The students were generally very satisfied with the demonstrated knowledge of the teachers and mostly satisfied with their encouragement to complete the assignments. These two factors gave important contribution to the success of the program. Additional positive incentive was the fact that group included very active, highly motivated and competitive fellow students.

In addition, it is important to emphasize that the students were very satisfied with the variety of the elective courses offered to them. This fact allowed them to adapt the course selection to their interests and use the possibility to acquire new knowledge and skills in the fields relevant for their future career. Basic computing skills are today considered a necessity in the labor market, whereas more advanced skills offered by this program might be one of the potential comparative advantages to the other degree holders in social sciences.

An obstacle for some students might have been the very intensive pace of the program, especially during the first semester. In order to maximize the possibility for gaining new skills and knowledge, it was of vast importance to complete all of the assignments and regularly visit the lectures that have been held very frequently. Therefore, only highly motivated students should consider enrolling into this exceptionally interesting and useful graduate program.

4 Lessons learned

All in all, the evaluation results and the personal experiences of both the students and the teachers after the first semester are rather positive, but there is still room for improvement. For example, it has turned out from the evaluation forms submitted that the students were not quite happy with the compliance of the topics covered in classes with those announced in the course syllabi. It indicates that the teachers should better explain their wish to present the most current topics and the most current methodologies and tools, rather than sticking to the course syllabi strictly. Likewise, not all students have thought that the labor market will readily recognize the value and relevance of the degree acquired by completing this study program. Although the program creators have tightly collaborated with the Chamber of Commerce and associations of employers in Serbia when designing the courses, taking into account the labor market needs, it certainly requires more effort to make the students fully recognize these advantages.

Somewhat higher level of flexibility is also expected from the teachers in terms of the assignments – some of the students thought that they were asked to do assignments that require a rather high level of prerequisite technical knowledge (which few of the graduates from BA programs in social sciences have).

5 To be continued

Most of the first-generation students enrolled in the study program Social Studies and Computing are expected to graduate by February 2016, when the new generation of students will start with the classes. It will be interesting to make a survey of their theses' topics at that time (many of them are currently in the process of picking the theses' topics), in order to better understand the students' interests and expectations.

Meanwhile, the positive atmosphere around this study program continues. Potential applicants keep contacting the program council members about details, and it is encouraging to see that they come from a variety of BA study programs in social sciences, as well as from different universities. As an illustration, here's a comment from a potential applicant (holding a BA degree in Philosophy) sent to the Program Chair along with an inquiry about the program:

I think that nowadays it really makes sense to enroll in such a master's program, since in high-ranked universities like Stanford students of Philosophy take courses in Philosophy together with courses in Computer Science, Linguistics, and Psychology. It is the only way to really **apply** *Philosophy.*