



Master's Program

Computational Social Systems



Why Computing Belongs Within the Social Sciences

By Randy Connolly

Communications of the ACM, August 2020, Vol. 63 No. 8, Pages 54-59

10.1145/338344

[...]

Conclusion

Computing professionals and academics have helped create something awesome over the past half century. Awesome is truly the appropriate word, especially if we are cognizant of its etymological heritage. "Awesome" is derived from the ancient Greek word *deinon*, and this word captures better the full dimensions of computing's awesomeness. To be *deinon* is to be both wondrous and terrifying at the same time. "There are many deinon creatures on the earth, but none more so than man" sings the chorus in Sophocles' tragedy *Antigone*.

Within computing we have generally only focused on the wondrous and have ignored the terrifying or delegated its reporting to other disciplines. Now, with algorithmic governance replacing legal codes, with Web platform enabled surveillance capitalism transforming economics, with machine learning automating more of the labor market, and with unexplainable, non-transparent algorithms challenging the very possibility of human agency, computing has never been more *deinon*. The consequences of these changes will not be fully faced by us but will be by our children and our students in the decades to come. We must be willing to face the realities of the future and embrace our responsibility as computing professionals and academics to change and renew our computing curricula (and the worldview it propagates). This is the task we have been given by history and for which the future will judge us.





Why is it necessary?

- Computer Science is everywhere: Interdisciplinary, team-orientated, usable
- Computer Scientists need knowledge about society, people, economy
- Everybody needs basic IT skills
- Lucrative study programs
- In demand on the job market
- Building bridges between fields of studies



Overview of the CSS Master's Program

Offered by: Uni Graz & TU Graz
Language: English
Degree: Master of Science
Starting: Winter semester 2021

Framework from NAWI Graz (study law, pattern of the curriculum, ...)



Structure



Faculty of Computer Science

General introduction
and the 4 specializations



Business Analytics

Business
Administration

Societies, Technology and Social Research

Sociology

Law & Computer Science

Law

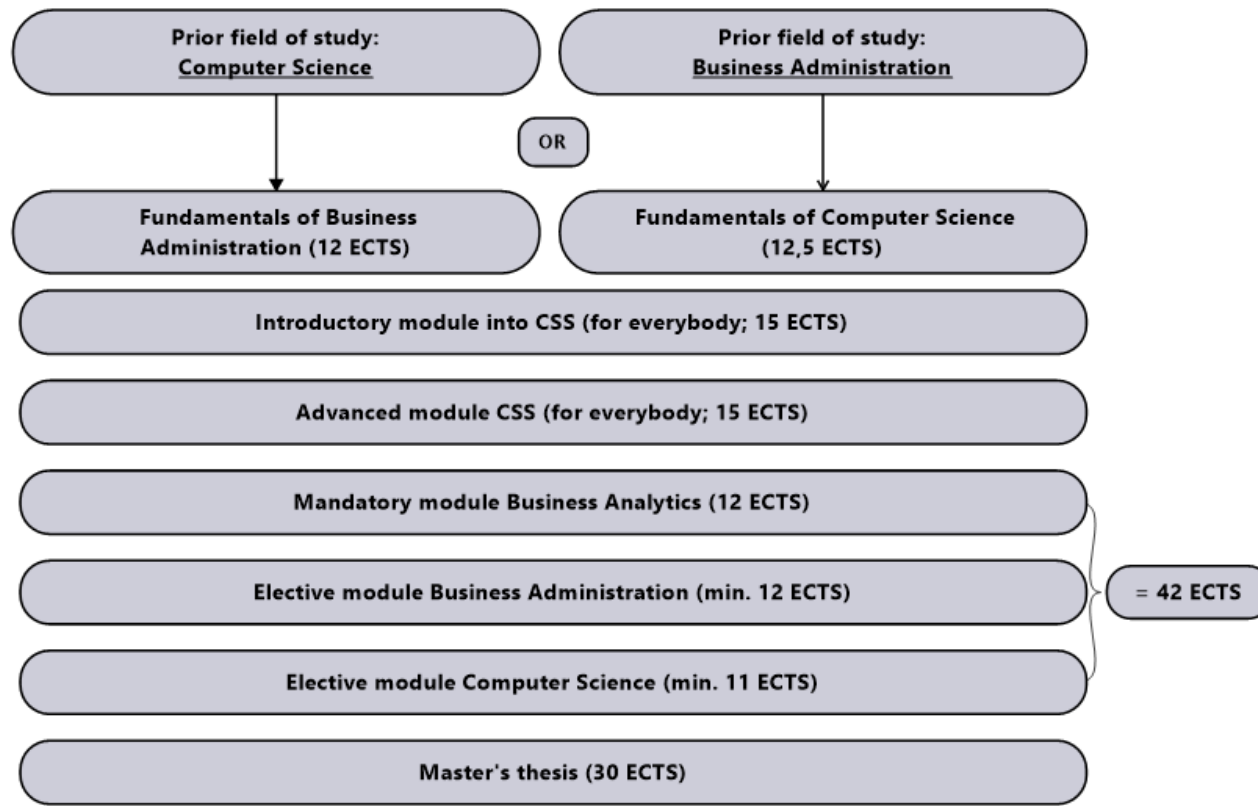
Human Factors

Psychology





Example of the study progression within the specialization Business Analytics





Overview of the specializations



Business Analytics

- Researching questions and problems in Business Administration with data-based and algorithmic methods and designing data-based concepts, models and systems
- Graduate's competences
 - To design and lead Business Analytics projects
 - Interdisciplinary communication within these projects
 - Implementing Business Analytics projects through the configuration of algorithms and statistical methods
 - Independent development of solutions for specific tasks



Societies, Technology and Social Research

- Research current questions in digital societies with data-based and algorithmic methods
- Graduate's competences
 - Designing and independently executing projects that combine Sociology and Computer Science
 - Analyzing sociological processes with IT methods
 - Researching the sociological consequences of digital systems



Human Factors

- Research questions about human behavior in the modern digital systems
- Graduate's competences
 - Researching the relationship between humans and computers, develop computer interfaces for humans, understand the challenges one can face with trying to improve operability, usability and comfort
 - Understanding psychological phenomena with IT methods: Sentiment Detection, Mental Health Tracking, Text-Based Psychometrics



Law and Computer Science

- Research legal questions regarding the usage of digital systems and the utilization of user data for legal purposes
- Graduate's competences
 - Designing and leading „Law by Design“ - projects
 - To assess legal aspects of the development and the usage of digital systems
 - To understand and critically judge the influence of the digitalization on the legal system



Feedback from the job market



Business Analytics Findings

- Strong interest in graduates
 - Experts are increasingly in demand: Facilitators at the junction Business Administration – Computer Science are needed
 - Good for roles such as Project Manager or Product Owner.
 - Highly relevant for auditing, as Data Science will influence it immensely
- Data protection and Security to consider
- In the study program's name, the "Transformation" seems over the top, CSS is associated with Sociology, Digital Science is seen as the better alternative



Societies, Technologies and Social Research Findings

- Interest in the study program
 - Good education for managing projects in their entirety
 - Employment in Requirements Engineering and Maintainability of Software.
- Legal aspects very important: Data Protection, Data Mining, Data Analysis, Data Interpretation



Law and Computer Science Findings

- Great interest: Law without IT is not possible anymore
- Good education for
 - Chief Information Security Officer, Data Security Commissioner
 - Expert at the junction Computer Science and Law



Human Factors Findings

- Human-Computer Interaction is highly important for many industries
 - Automotive, computer games, learning support, medical industry
- Junction function essential where technicians and other professions work together



Questions?