

Quantum Disruption

26FS

Programme

BSc in Wirtschaftsinformatik
BSc in Business Information Technology

Degree

Bachelor

ECTS

3

Module coordinator

Prof. Dr. Bettina Schneider

Compulsory attendance

Attendance is expected

Leading principle / Short description

Quantum computing (QC) is no longer a distant breakthrough—it is rapidly transforming industries and redefining the rules of business. As this cutting-edge technology advances, new opportunities and challenges emerge across key sectors, including finance, pharmaceuticals, logistics, and cybersecurity. Companies are already leveraging QC-powered algorithms to optimize complex financial models, revolutionize drug discovery, streamline global supply chains, and enhance digital security.

Switzerland, a global hub for innovation, must stay ahead in this quantum revolution. According to the Swiss Academy of Engineering Sciences (SATW), seizing this opportunity is essential for maintaining a competitive edge.

Our interactive course is designed specifically for business and business informatics students, equipping you with the insights needed to navigate and capitalize on the quantum-driven economy. How will quantum technology disrupt markets, reshape industries, and influence strategic decision-making? Will it be a force for security and trust—or an unprecedented challenge?

Join us on this exciting learning journey to explore the future of business in a quantum world — with a special focus on the Swiss innovation and business ecosystem!

Module content

Introduction to and Relevance of Quantum Computing (QC)

- o Core Concepts – Understanding the fundamentals of QC and how it differs from classical computing.
- o Business and Economic Relevance – Why QC matters for industries and its potential to disrupt markets.
- o Market Projections and Industry Expectations – Insights into current developments, investments, and the growing quantum economy.

Application Fields of QC, e.g.

- o Life Sciences – Accelerating drug discovery, personalized medicine, and complex simulations.
- o Supply Chains – Enhancing logistics, route planning, and global operations.
- o Cybersecurity – Strengthening or threatening data security and redefining digital trust.

Reflection and Future Outlook for QC

- o Strategic and Economic Impact Analysis – How QC will reshape industries and competitive landscapes.
- o Ethical and Societal Considerations – Balancing innovation with responsibility in a quantum-powered world.
- o Future Job Profiles and Industry Adaptation – Exploring new career opportunities and the evolving role of business leaders in the quantum era.

Competencies to be achieved**Knowledge and Understanding: Students ...**

- o Explain fundamental QC principles and their differences from classical computing.
- o Describe the relevance of quantum computing in business and its potential industry-wide impact.
- o Understand real-world use cases of QC and how they create competitive advantages.

Applying Knowledge and Understanding: Students ...

- o Interpret market reports and case studies to assess the potential impact of QC on various industries (analysis).
- o Develop a presentation to communicate QC opportunities and risks to business stakeholders (synthesis).
- o Identify real-world business challenges that could benefit from quantum computing solutions (problem-solving).

Making Judgements: Students ...

- o Critically evaluate the opportunities and risks of QC for the future economy.
- o Assess the potential benefits and limitations of QC in selected application fields.

Communications Skills: Students ...

- o Present as a group work an impact analysis of QC on future business landscapes and society.
- o Formulate reasoned arguments on whether QC enhances trust and security or introduces new risks.

Prerequisites

none

Teaching and learning methods

Contact Hours:

Lecture, Educational Dialogue, Presentation, Group work

Guided Self-Study:

Individual Work

Remarks

Teaching locations will be FHNW Basel and Muttenz. Travelling to a Swiss QC-practice partner is expected, such as QuantumBasel

Grading

pass / fail

Assessment**Group Work Presentation 50%**

Oral / Written

oral

Duration (min)

15

Timeframe

During final lecture

Grading Scale

pass / fail

Remarks

Presentation of (written) group work results

Knowledge Assessment 50%

Oral / Written

written

Duration (min)

30

Timeframe

During one lecture

Grading Scale

pass / fail

Remarks

Via moodle quiz

Module details**Quantum Disruption (Block Week CW7) - Basel**

Language	Englisch
Max. participants	35
Periodicity	Block week
Lecturers	Prof. Dr. Bettina Schneider
Number	2-26FS.W-B-WIBIT-BSC-QuaDis_en.EN/WM

