Studying Financial and Actuarial Mathematics at Vienna University of Technology

Workshop Actuarial Education
February 28, 2006

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Vienna University of Technology, Austria
http://www.fam.tuwien.ac.at/~schmock/
Bachelor and Master in Actuarial Mathematics

Two degrees offered since October 1, 2002.

**Bachelor:** 3 years, WS 05/06: 70 students (46m/24f)

Curriculum:

- Linear algebra, calculus, 27h
- Probability theory, statistics, 18h
- Actuarial mathematics, 22h
- Law, accounting, business operations, 12h
- Computer science, 9h
- Seminar with thesis, 3h
- Practical project with thesis, 10h
Master in Actuarial Mathematics

Duration: 2 years, WS 05/06: 19 students (8m/11f)

Curriculum:

- Advanced calculus, differential equations, 13h
- Advanced actuarial mathematics, 20h
- Individually selected courses (probability theory, statistics, financial mathematics, operations research, econometrics, logic, computer science, law), 12h + 5h
- Master thesis

Also available: Technical Mathematics with specialization in financial and actuarial mathematics. Officially 49 (26m/23f) students. We expect additional 90–100 students out of 579 without an official decision so far.
Future Education in Mathematics at TU Vienna

Bachelor programs

• Mathematics in natural science
• Mathematics in computer science
• Statistics and mathematics in economics
• Financial and actuarial mathematics

Master programs

• Mathematics in natural science
• Mathematics in computer science
• Mathematics in economics
• Financial and actuarial mathematics
• Statistics
Bachelor in Financial and Actuarial Mathematics

Planned curriculum

- Linear algebra I, II (13h)
- Calculus I, II, III (19h)
- Differential equations (4.5h)
- Measure and probability theory, statistics (17.5h)
- Numerics, computer science (13h)
- Actuarial mathematics
  - Life insurance mathematics (5h)
  - Life and health insurance mathematics (5h)
  - Non-life insurance mathematics (5h)
Bachelor in Financial and Actuarial Math. (cont.)

• Financial mathematics
  – Financial mathematics I: discrete models (4h)
  – Quantitative methods in risk management (3h)

• Law, accounting, business operations
  – Insurance business management (2h)
  – Accounting for banking and insurance (2h)
  – Contract law for insurance (2h)
  – Insurance supervision law (2h)
  – Financial markets and financial intermediation (2h)

• Free courses (18 ECTS)
• Seminar with written documentation (2h/3 ECTS)
• Practical project with thesis (4h/12 ECTS)
Master in Financial and Actuarial Mathematics

Planned curriculum

- Private economic law (2h)
- Functional analysis I (5h)
- Financial and actuarial mathematics
  - Stochastic analysis for FAM (3h)
  - Financial mathematics II: time-continuous models (6h)
  - Risk und ruin theory (6h)
  - Advanced life insurance mathematics (4h)
  - Stochastic control theory in FAM (3h)
  - Selected courses in FAM (33 ECTS, about 22h)
- Free courses (9 ECTS)
- Master thesis (30 ECTS)
Continuing Education in Actuarial Mathematics

- Austrian Workshop on Credit Risk Management
  (at TU & Univ. Vienna, Jan. 31 – Feb. 2, 2001)
  Program: http://www.fam.tuwien.ac.at/crm/

- Austrian Workshop on Asset Liability Management in Insurance
  (at TU Vienna, Sept. 23–25, 2004)
  Program: http://alm.fam.tuwien.ac.at/

- Foundations of Modern Financial Mathematics
  Speakers: Prof. Schmock & Prof. Teichmann,
  both FAM, TU Vienna (July 8–9, 2004)

- One-Day Workshop on Portfolio Risk Management
  (PRisMa 2005), TU Vienna, Sept. 26, 2005
  http://www.fam.tuwien.ac.at/prisma2005/
Continuing Education in Actuarial Math. (cont.)

• Station for the “Long Night of Research”
  Von A wie Aktie bis S wie Sterbewahrscheinlichkeit
  October 1, 2005, TU Vienna
  Posters, various Java applets, online at
  http://www.fam.tuwien.ac.at/public/

• Half-Day Workshop on Credit Risk and Risk Transfer,
  TU Vienna (Jan. 25, 2006)
  http://www.fam.tuwien.ac.at/wwtf2006/

• Quarterly lecture series on financial and actuarial
  mathematics (jointly with AVÖ and VVÖ),
  List of talks: http://www.fam.tuwien.ac.at/vr/