Master Degree in Quantitative Finance and Insurance, A.Y. 2023/24

SUGGESTED PROFILES

Suggested elective courses can be grouped in the following main topics:

Insurance
- Bilancio delle banche e delle assicurazioni (10 CFU)

Finance
- Sustainable finance (6 CFU)
- Advanced asset pricing (6 CFU)
- Financial econometrics (6 CFU)
- Quantitative risk management (6 CFU)

Statistics
- Statistical machine learning (6 CFU)
- Multivariate statistical analysis (6 CFU)
- Database and algorithms (12 CFU)

Trading
- Strategie di trading e copertura dei derivati (10 CFU)

Phd
- Decisions and uncertainty (6 CFU)
- Sustainable finance (6 CFU)
- Advanced asset pricing (6 CFU)

Finance students may consider as elective also Mathematics for insurance. Insurance students may consider as elective also Econometrics and Corporate finance.

Find below examples of personalized study plans.

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PROFILE 1: PURE INSURANCE (ACTUARY)
Curriculum in Insurance and Statistics
124 CFU

First year, first semester
Probability for Finance
Numerical and statistical methods for finance (i)
Mathematics for insurance
Banking

First year, second semester
Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Life and non-life insurance techniques
Computer Science with Python and Additional IT training

Second year, first semester
Derivatives
Fixed income
Commercial law
Statistical Machine Learning (6 CFU)
Bilancio delle banche e delle assicurazioni (in Italian, elective, 10 CFU)
Second year, second semester
Quantitative risk management (elective, 6 CFU)

Key
Blue: Choice among alternatives, depending upon the main curricula (Finance or Insurance and Statistics)
Red: Elective

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PROFILE 1bis: PURE INSURANCE (ACTUARY)
Curriculum in Insurance and Statistics
124 CFU

First year, first semester
Probability for Finance
Numerical and statistical methods for finance (i)
Mathematics for insurance
Banking

First year, second semester
Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Life and non-life insurance techniques
Computer Science with Python and Additional IT training

Second year, first semester
Derivatives
Fixed income
Commercial law
Bilancio delle banche e delle assicurazioni (in Italian, elective, 10 CFU)

Second year, second semester
Quantitative Risk Management (6 CFU)
Multivariate statistical analysis (elective, 6 CFU)

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PROFILE 2: MAINLY INSURANCE + SOME FINANCE
Curriculum in Insurance and Statistics

First year, first semester
Probability for Finance
Numerical and statistical methods for finance (i)
Mathematics for insurance
Banking

First year, second semester
Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Life and non-life insurance techniques
Computer Science with Python and Additional IT training

Second year, first semester
Derivatives
Fixed income
Commercial law

Second year, second semester
Quantitative Risk Management (6 CFU)
Econometrics (elective, 12 CFU)

PROFILE 2bis: MAINLY INSURANCE + SOME FINANCE
Curriculum in Insurance and Statistics

First year, first semester
Probability for Finance
Numerical and statistical methods for finance (i)
Mathematics for insurance
Banking

First year, second semester
Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Life and non-life insurance techniques
Computer Science with Python and Additional IT training

Second year, first semester
Derivatives
Fixed income
Commercial law
Decisions and uncertainty (6 CFU)

Second year, second semester
Financial econometrics (elective, 6 CFU)
Quantitative risk management (elective, 6 CFU)

PROFILE 3: MAINLY FINANCE + SOME INSURANCE
Curriculum in Finance

First year, first semester
Probability for Finance
Numerical and statistical methods for finance (i)
Banking
Econometrics (i)
Corporate Finance

First year, second semester
Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Econometrics (ii)
Computer Science with Python and Additional IT training

Second year, first semester
Derivatives
Fixed income
Commercial law
Mathematics for insurance (elective, 6 CFU)

Second year, second semester
Quantitative risk management (6 CFU)
Multivariate statistical analysis (elective, 6 CFU)

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PROFILE 3bis: MAINLY FINANCE + SOME INSURANCE
Curriculum in Finance

First year, first semester

Probability for Finance
Numerical and statistical methods for finance (i)
Banking
Econometrics (i)
Corporate Finance

First year, second semester

Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Econometrics (ii)
Computer Science with Python and Additional IT training

Second year, first semester

Derivatives
Fixed income
Commercial law
Mathematics for insurance (elective, 6 CFU)

Second year, second semester

Quantitative risk management (6 CFU)
Advanced asset pricing (elective, 6 CFU)

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PROFILE 3ter: MAINLY FINANCE + SOME INSURANCE
Curriculum in Finance

First year, first semester
Probability for Finance
Numerical and statistical methods for finance (i)
Banking
Econometrics (i)
Corporate Finance
Mathematics for insurance (elective, 6 CFU)

First year, second semester
Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Econometrics (ii)
Computer Science with Python and Additional IT training

Second year, first semester
Derivatives
Fixed income
Statistical Machine Learning (elective, 6 CFU)

Second year, second semester
Commercial law
Quantitative risk management (6 CFU)

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PROFILE 4: PURE FINANCE
Curriculum in Finance

First year, first semester
Probability for Finance
Numerical and statistical methods for finance (i)
Banking
Econometrics (i)
Corporate Finance

First year, second semester
Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Econometrics (ii)
Computer Science with Python and Additional IT training

Second year, first semester
Derivatives
Fixed income
Commercial law
Strategie di trading e copertura dei derivati (in Italian, elective, 10 CFU)
Sustainable Finance (elective, 6 CFU)

Second year, second semester
Quantitative risk management (6 CFU)

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PROFILE 4bis: PURE FINANCE
Curriculum in Finance

First year, first semester

Probability for Finance
Numerical and statistical methods for finance (i)
Banking
Econometrics (i)
Corporate Finance

First year, second semester

Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Econometrics (ii)
Computer Science with Python and Additional IT training

Second year, first semester

Derivatives
Fixed income
Commercial law
Strategie di trading e copertura dei derivati (in Italian, elective, 10 CFU)

Second year, second semester

Quantitative risk management (6 CFU)
Advanced asset pricing (elective, 6 CFU)

PROFILE 4ter: PURE FINANCE
Curriculum in Finance

First year, first semester
Probability for Finance
Numerical and statistical methods for finance (i)
Banking
Econometrics (i)
Corporate Finance

First year, second semester
Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Econometrics (ii)
Computer Science with Python and Additional IT training

Second year, first semester
Derivatives
Fixed income
Commercial law
Sustainable finance (elective, 6 CFU)

Second year, second semester
Advanced asset pricing (elective, 6 CFU)
Quantitative risk management (6 CFU)

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PROFILE 4quater: PURE FINANCE
Curriculum in Finance

First year, first semester
Probability for Finance
Numerical and statistical methods for finance (i)
Banking
Econometrics (i)
Corporate Finance

First year, second semester
Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Econometrics (ii)
Computer Science with Python and Additional IT training

Second year, first semester
Derivatives
Fixed income
Commercial law
Sustainable finance (elective, 6 CFU)
Financial econometrics (6 CFU)

Second year, second semester
Advanced asset pricing (elective, 6 CFU)

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PROFILE 5: FINANCE/STATISTICS
Curriculum in Finance
(126 CFU)

First year, first semester

Probability for Finance
Numerical and statistical methods for finance (i)
Banking
Econometrics (i)
Corporate Finance

First year, second semester

Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Econometrics (ii)
Computer Science with Python and Additional IT training

Second year, first semester

Derivatives
Fixed income
Commercial law
Statistical machine learning (elective, 6 CFU)

Second year, second semester

Multivariate statistical analysis (6 CFU)
Database and algorithms (elective, 12 CFU)

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PROFILE 5bis: FINANCE/STATISTICS
Curriculum in Finance
(120-126 CFU)

First year, first semester
Probability for Finance
Numerical and statistical methods for finance (i)
Banking
Econometrics (i)
Corporate Finance

First year, second semester
Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Econometrics (ii)
Computer Science with Python and Additional IT training

Second year, first semester
Derivatives
Fixed income
Commercial law
Statistical machine learning (elective, 6 CFU)

Second year, second semester
Multivariate statistical analysis (6 CFU)
Quantitative risk management (elective, 6 CFU)

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PROFILE 6: INSURANCE/STATISTICS
Curriculum in Insurance and Statistics
(126 CFU)

First year, first semester
Probability for Finance
Numerical and statistical methods for finance (i)
Mathematics for insurance
Banking

First year, second semester
Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Life and non-life insurance techniques
Computer Science with Python and Additional IT training

Second year, first semester
Derivatives
Fixed income
Commercial law
Statistical machine learning (elective, 6 CFU)

Second year, second semester
Multivariate statistical analysis (6 CFU)
Database and algorithm (elective, 12 CFU)

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PROFILE 6bis: INSURANCE/STATISTICS
Curriculum in Insurance and Statistics
(126 CFU)

First year, first semester
Probability for Finance
Numerical and statistical methods for finance (i)
Mathematics for insurance
Banking

First year, second semester
Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Life and non-life insurance techniques
Computer Science with Python and Additional IT training

Second year, first semester
Derivatives
Fixed income
Commercial law
Statistical machine learning (elective, 6 CFU)

Second year, second semester
Quantitative risk Management (6 CFU)
Database and algorithm (elective, 12 CFU)

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PROFILE 7: PURELY THEORETICAL
Curriculum in Finance

First year, first semester

Probability for Finance
Numerical and statistical methods for finance (i)
Banking
Econometrics (i)
Corporate Finance
Mathematics for insurance (elective, 6 CFU)

First year, second semester

Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Econometrics (ii)
Computer Science with Python and Additional IT training

Second year, first semester

Derivatives
Fixed income
Commercial law
Sustainable finance (6 CFU)

Second year, second semester

Advanced asset pricing (elective, 6 CFU)

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PROFILE 7bis: PURELY THEORETICAL
Curriculum in Finance

First year, first semester

Probability for Finance
Numerical and statistical methods for finance (i)
Banking
Econometrics (i)
Corporate Finance

First year, second semester

Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Econometrics (ii)
Computer Science with Python and Additional IT training

Second year, first semester

Derivatives
Fixed income
Commercial law
Mathematics for insurance (elective, 6 CFU)
Financial Econometrics (6 CFU)

Second year, second semester

Quantitative risk management (elective, 6 CFU)

PROFILE 7ter: PURELY THEORETICAL
Curriculum in Finance

First year, first semester
Probability for Finance
Numerical and statistical methods for finance (i)
Banking
Econometrics (i)
Corporate Finance
Decisions and uncertainty (elective, 6 CFU)

First year, second semester
Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Econometrics (ii)
Computer Science with Python and Additional IT training

Second year, first semester
Derivatives
Fixed income
Commercial law
Sustainable finance (elective, 6 CFU)

Second year, second semester
Multivariate statistical analysis (6 CFU)

PROFILE 7quater: PURELY THEORETICAL
Curriculum in Finance

<u>First year, first semester</u>
Probability for Finance
Numerical and statistical methods for finance (i)
Banking
Econometrics (i)
Corporate Finance

<u>First year, second semester</u>
Stochastic calculus and mathematical finance
Numerical and statistical methods for finance (ii)
Asset pricing and portfolio choice
Econometrics (ii)
Computer Science with Python and Additional IT training

<u>Second year, first semester</u>
Derivatives
Fixed income
Commercial law
Decisions and uncertainty (elective, 6 CFU)
Financial Econometrics (6 CFU)

<u>Second year, second semester</u>
Advanced asset pricing (elective, 6 CFU)