

Information on PhD Label

“Mathematics in Economics and Business”

Institute for Statistics and Mathematics

Outline

- The PhD Label: General info and first-year milestones
- Study Program: Course structure and requirements
 - Research Seminar and PhD Research Seminar
 - Electives, external courses and conferences
- Dissertation requirements and committees
- Practical contacts and next steps

WU FORMAL

PhD in Economic and Social Sciences

- The WU curriculum is the formal degree framework.
- It governs admission, course modules, the Research Proposal, (partly) dissertation and Defensio.

LABEL

Mathematics in Economics and Business

- The Label brings together PhD students working in mathematical finance, statistics, machine learning, optimization and operations research.
- The Label specifies how parts of the WU curriculum are fulfilled and puts extra structure/requirements on it.
- It aims to create a shared mathematical research environment through required courses, seminars and common dissertation standards.

The first year

AT ADMISSION

- **Online admission:** please go to webpage and complete the steps: [Application and admissions - Programs - WU \(Vienna University of Economics and Business\)](#)
- **Preliminary confirmation of supervision:** you need to fill in the form (Vorläufige Betreuungszusage /Preliminary Confirmation of the supervisor) and supervisor should sign
- **Synopsis / Exposé**

DURING YEAR 1

- Individual course planning (mind the registration periods)
- Participate in both seminars
- Prepare the **Research Proposal** and form the proposal committee

If want to visit courses at Uni Wien or at the TU Wien, you should co-enroll there (Mitbelegung in German).

DEADLINES

- Winter admission: by 31 October 2026
- Summer admission: by 31 March 2027
- Research Proposal within one year

Synopsis / Exposé and Research Proposal

Synopsis / Exposé at admission

- Short initial description of the dissertation project
- According to the main supervisor's specifications
- Normally 1–2 pages

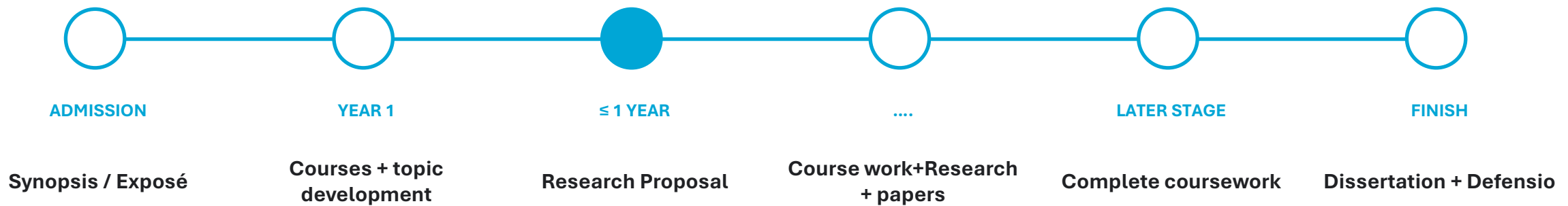
Research Proposal during Year 1

- Suggested to be around 8000 words
- Topic and current state of research, Research question, Basic methodological / theoretical approach, Expected contribution to the field
- Assessed by the supervision team (Supervision Team consists of 3 or more professors (with habilitation or equivalent qualification), external examiners need to fill in additional form)
- How to submit and other details:

[Infosheet_Research_Proposal_2018.pdf](#)

The PhD program at a glance

The program usually requires 4-5 years, but it is research-led rather than a US-style sequence of fixed cohorts and qualifying exams.



The study program

WU curriculum component	ECTS	Label implementation / note
Academic Writing	6 ECTS	Research Seminar twice or a WU Academic Writing course
Research Methods	6 ECTS	advanced PI course (offered by the institute)
Methodology and Theory	6 ECTS	advanced PI course (offered by the institute)
Interdisciplinary Research Seminar	6 ECTS	WU curriculum module
Research Seminar	12 ECTS	PhD Research Seminar (four times)
Electives I + II	3 + 3 ECTS	outside-WU activity (conference presentation etc) / course
Further courses	30 ECTS	five additional 6-ECTS, PI courses (see next slide)

For courses offered at WU: [Directory of Classes](#)

Source: WU Curriculum 2019, §5; Label implementation as described in this orientation.

Mandatory electives: breadth across the Label

**Stochastic Processes
and Financial
Mathematics**

**Statistics and
Computing**

Including ML courses

**Analysis,
Optimization
and Operations
Research**

analysis / OR

**Economics, Business
or Finance**

Course offered eg in Econ,
or VGSF*, PI

Students are required to take five electives (6 ECTS each, totaling 30 ECTS), with at least one elective from each of the above fields

For (PI) courses offered within the label: [Current courses - PhD Label Mathematics in Economics and Business - Teaching](#)

*It is possible to visit an elective course offered by VGSF PhD program:

- If you intend to do so please inform your supervisor (put us on cc); we get in contact with Prof. Alexander Mürmann to get a confirmation.
- We should make sure that at most 2 students should visit the same VGSF elective at once.

Research Seminar and PhD Research Seminar

Research Seminar

- Research talks by senior researchers / professors, typically visitors from outside WU
- Students must register
- Students submit summaries of two presentations (format may change in the future)
- Completing two Research Seminars counts as an Academic Writing course

PhD Research Seminar

- Internal forum for PhD students' own research
- Each student participates as presenter or discussant
- Counts as Research Seminar in the WU PhD curriculum
- Students must register to 4 PhD Research Seminars twice as a presenter and twice as a discussant

Electives I + II

Two electives of 3 ECTS each.

Conference / workshop

- Attend an appropriate conference or workshop
- Give a presentation
- The activity can be acknowledged for Elective I / II

Course outside WU

- Contact the Doctoral Office in advance
- Clarify registration and recognition before taking the course
- Complete the necessary formal steps

Do not assume an external activity will count: clarify recognition first.

Additional requirements

Different entry backgrounds may require different preparation.

FORMAL

CBK / compensatory requirements by WU

- Students without the required economics / finance / business background may have additional courses specified at admission.
- These requirements are extra to the Label course load.

PROPOSED

Common foundations

- For students lacking fundamental knowledge on probability / stochastic; mathematical statistics / inference; and finance, there may be additional courses. This is handled case by case and additional course list will be decided by the label and the supervisors.
- Goal: enable participation in advanced electives and preserve a common language in the PhD Research Seminar or in other occasions.

Proposed 2026 cohort policy: exact courses and whether they are required or strongly recommended should be finalized by faculty.

Examples of courses offered in recent years

- Stochastic Processes with Jumps · Continuous-Time Finance · Extreme Value Theory
- Bayesian Econometrics · Dependence Modeling with Copulas · Computational Statistics · Causal Inference · Statistical Learning
- Functional Analysis, Convex Analysis
- Mixed-Integer (Non)Linear Programming · Advanced Optimization.....

Illustrative selection from the Label course archive; use the current course page for the actual semester offering.

Course offerings 2026/27

Field

Winter semester 2026/27

Stochastics / Financial Mathematics

Continuous Time Finance (R. Frey)

Statistics / Computing / ML

From FFT to Deep Learning: Twelve Algorithms that Shaped Modern Computing (1950-2026) (M.Mühlebach)

Analysis / Optimization / OR

Combinatorial Optimization (I. Ljubic); Functional Analysis (P. Eisenberg)

Economics / Business

Please check courses offered in VGSF, Econ department, etc

Foundations / Bridging

TBD

PhD Research Seminar in Mathematics for Economics and Business (B. Rudloff, D. Preinerstorfer)

Research Seminar in Statistics and Mathematics (K. Hornik, R. Frey – **Academic Writing**)

New Perspectives in Business and Econometrics (K. Hornik, T. Reutterer- **Interdisciplinary Research Seminar**)

Dissertation Guidelines

- Language: English
- Cumulative dissertation with at least three publishable articles / working papers
- Comprehensive introduction and concluding summary / outlook
- At least two papers should meet the standard for publication in reputable international journals
- Co-authorship is allowed, including with supervisors; a contribution statement is required
- The student's overall contribution must be substantial

Source: Guidelines for Dissertations at the Institute for Statistics and Mathematics.

Supervision team and doctoral committee

These are different functions and may involve different people.

Supervision team · Research Proposal

- At least 3 professors (habilitation or equivalent)
- Ideally assembled from the start; at latest by Research Proposal submission
- Accompanies the dissertation project
- Assesses the Research Proposal

Doctoral committee · Dissertation / Defensio

- 3 professors (habilitation or equivalent)
- At least one member from outside WU
- For the Label: one member should be international
- Assesses dissertation and Defensio
- Request at least 4 weeks before dissertation submission or Defensio, whichever comes first

Source: WU 1st-year information sheet; Institute dissertation guideline. The doctoral committee may differ from the supervision team.

Who do I ask?

Label course plan / requirement

Supervisor + Label directors

External course / formal recognition

Label directors, Doctoral Office — contact in advance

Conference / workshop recognition

Doctoral Office + supervisor

Research and PhD Seminars

Course instructors

Add current names / email aliases before presenting.

The Institute offers a **workshop “Mental strength - Developing Resilience and Focus for Academic Success”** for our young scientists.

Topic:

The pursuit of an academic life is a long-term journey that requires not only intelligence, but also mental strength - the ability to remain steady and focused on one's goals for many years. The workshop aims to give Pre-Docs tools to develop their mental strength for leading happy and successful careers.

Date & Time:

October 27, 2026: 9 am - 12:30 pm

November 9, 2026: 9 am - 12:30 pm

Dezember 1, 2026: 9 am - 12:30 pm

The workshop will be held in English.

Please reserve the date in your calendar. Participation is mandatory 😊 More details will follow in due time.

Orientation for (future) doctoral students:

On Wednesday, **14 October 2026**, at 5.00 pm (s.t.), the academic director for Doctoral/PhD studies will hold an orientation for (future) doctoral students.

The presentation will be held in English and in hybrid mode.

Please register for the event **until October 7th** by writing an e-mail to doctoraloffice@wu.ac.at, telling us if you would like to attend in person on campus or online via MS Teams.