



Universität für Bodenkultur Wien
University of Natural Resources
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The Austrian Higher Education System at Doctoral Study level with special emphasis on programs at BOKU University

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Overview

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Austrian Higher Education System

- after 12 years of primary and secondary education
- from 2002 new University Law introducing also the **Bologna System**
- Austrian University Act of 2002 gives **full autonomy** to the Austrian Universities for establishing **curricula**
- **only few study programs** have **entrance exams**
- **tuition fees** per semester are 363,36 € for EU students and 726,72 € for Third-Country-Students, but: **several exemptions**

Legal framework for Austrian universities

1999 **Bologna process**

2005 **Salzburg Principles**

- 10 Principles describe training of independent young researchers

2010 **Salzburg II**

- evaluation of the implementation

- resulted in seven principles of **Innovative Doctorate Training**:

- change the status from student to **employee (young researcher)**
- start early **exchange their experience**
- teach them **good practice of work**
- **three years** salary guaranteed
- **publish** and thereby establish a significant reputation
- tighter **supervision**
- importance of **mobility**

Legal framework for Austrian universities

uniko

UNIVERSITIES AUSTRIA/ ÖSTERREICHISCHE UNIVERSITÄTENKONFERENZ

- non-profit association
- assists the Austrian universities in the fulfilment of their tasks and responsibilities
- funded through membership fees, paid by 21 public Austrian universities
- **Code of Conduct** lists the minimal requirements for the completion of the doctoral thesis:
 - mandatory submission of a **dissertation proposal** during the first academic year
 - PhD student is guided by a committee through the study (**Advisory Team**)
 - **requirements for written thesis and defense** were defined
 - **one reviewer** of the thesis **must not belong to the supervisor's department**

Examples for PhD schools in Austria outside BOKU

IST Austria International PhD Program

- funding period of 4 - 5 years, depending if the students enter with MSc or BSc
- PhD students are selected by a committee consisting of professors of IST Austria, research performance must be confirmed by three referees
- qualifying exam after the first academic year

University of Vienna: uni:docs fellowship

- financing excellent doctoral candidates for a period of three years
- competitively selected PhD students

Doctoral studies at BOKU

- **Historic overview**
- **Curricula organization**
- **Doctoral programs offered at BOKU**
- **Timeline of doctoral programs**
- **Funding**
- **Implementation of principles at BOKU**

Historic overview

1872 BOKU founded

1906 BOKU obtained right to award doctoral degrees

2003/04 **Bologna Process** implemented

- introduced 3-year Bachelor, 2-year Master studies
- continuous reorganization of the Doctoral studies

2015 former admission requirement **“3 pillars”** cancelled

natural sciences – technology – socio-economics

- competitive disadvantage, doctoral studies are specialized
- new model includes a mandatory lecture to impart the “3 pillars”:

**“Principles and challenges of research in socio-economics,
natural resources and life sciences” (4 ECTS)**

Curricula development & contents

Senate's Study Commission

is supported by different subgroups according to the broad thematic areas covered by BOKU curricula

Subgroup for doctoral studies “DoktoratsStuko”

consists of professors, senior scientists and students (6/6/6)

tasks are:

- approval and quality check of new Doctorate/PhD Programs
- development and adjustment of corresponding guidelines and regulations
- advice for the Senate and Rectorate in issues on doctoral studies
- information/advice for teaching staff and administration

Doctoral programs offered at BOKU

General tracks of BOKU's doctoral studies

- Doctoral studies of Natural Resources and Life Sciences
Degree: **“Dr.nat.techn.”**
- Doctoral studies of Social and Economic Sciences
Degree: **“Dr.rer.soc.oec.”**

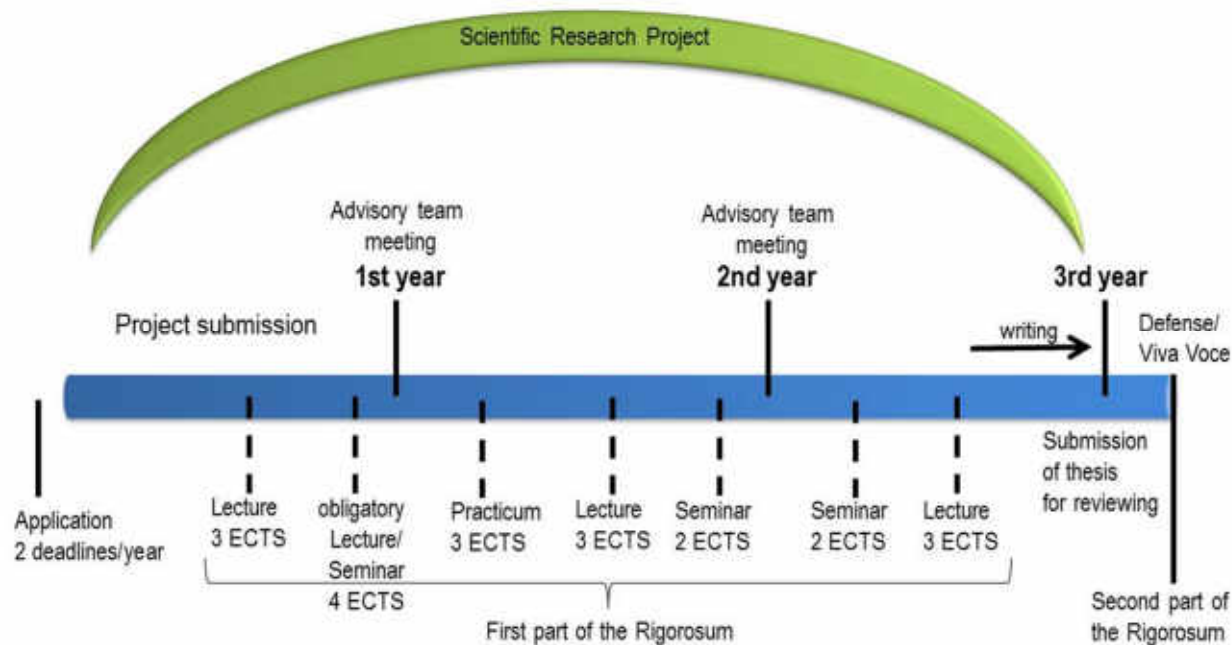
Two BOKU doctoral schools

- **BioToP** (Biomolecular Technology of Proteins)
funded by Austrian Science Fund (FWF)
Degree: **“Ph.D.”**
- **IGS NanoBio** (International Graduate School Nano-Biotechnology)
joint degree with Nanyang Technological University Singapore
Degree: **“Ph.D.”**

Timeline of Doctoral Programs

Within one year after admission, a **research project** has to be submitted consisting of

- Doctoral thesis **subject**
- Name of **supervisor** with *venia docendi* or similar qualification
- **Working plan**, approved by the supervisor
- **Advisory team** with at least one other scientists with *venia docendi*
- **Time schedule**
- Financial/**resource plan**
- Proposal for 20 (or more) ECTS **courses**, approved by the advisory team



Rules for written thesis and Rigorosum

Doctoral thesis

- is an independent scientific research work on a specific topic
- must belong to a scientific subject represented by a BOKU professor
- monography or
- cumulative thesis
 - min. 2 accepted publications as first or equally contributing author in a journal with impact factor (according Web of Science™) plus a general introduction and discussion of the subject
- can be carried out in a joint doctoral project, but needs to be graded separately
- two reviewers propose the grading
 - not the supervisor; one of the reviewers may belong to the supervisor's department

Rigorosum

- consists of two parts
- min. 20 ECTS coursework
- public *viva voce* exam ("Defensio")
 - carried out by two examiners and one chair, the supervisor may serve as an examiner but not as a reviewer

Funding - Overview

Austrian Funding

Third Party funding of a research group

- Austrian Science Fund (FWF)
- Austrian Research Promotion Agency (FFG)
- Vienna Science and Technology Fund (WWTF)
- Christian Doppler Research Association

Individual Fellowship

- Austrian Academy of Sciences (ÖAW)

BOKU-PhD School BioToP

Alternative („private“) sources of funding

EU Funding

Horizon 2020

- European Research Council (ERC)
- Marie Skłodowska-Curie (MSC) Actions
- Research projects

Austrian Funding

Third Party funded research for groups

- Ministry of Science, Research and Economy (BMWFW) and the Ministry of Transport, Innovation and Technology (BMVIT) support the main funding agencies in Austria
 - Austrian Science Fund (**FWF**, funded by BMWFW) → mostly basic research
 - Austrian Research Promotion Agency (**FFG**, funded by BMVIT and BMWFW) → mainly applied research, companies must be involved
- Vienna Science and Technology Fund (**WWTF**) → science and research in Vienna, with a focus on young researchers
- **Christian Doppler Research Association** → Christian Doppler Laboratories at universities and research institutions and Josef Ressel Centres at Universities of Applied Sciences, companies must be strongly involved

Austrian Funding

BOKU – PhD School BioToP (Biomolecular Technology of Proteins)

- enables inter- and multi-disciplinary research-based doctoral education
- funded by the Austrian Science Fund (FWF)
- PhD students are selected and employed as a research group member at BOKU
- covers conference expenses and research stays abroad in collaborating international institutions

Individual fellowship

- Austrian Academy of Sciences (**ÖAW**) offers **DOC fellowship** for three years
- PhD student is employed at BOKU
- covers additionally 500 € per year for travel expenses

Alternative sources of funding

- scientific (or technical) staff members
- self-funded PhD students (working elsewhere, parents...)
- may lead to extended duration and affect the quality of the dissertation

EU Funding

Horizon 2020

promotes research and innovation from 2014 to 2020 via:

- European Research Council (**ERC Grants**) → outstanding research group leaders, up to four years
- Marie Skłodowska-Curie (**MSC Actions**) – “Innovative Training Networks” (**ITN scholarships**) → six to ten partners, including one or two private sector partners, up to fifteen PhD students, three years
- **Research projects** of international consortia → PhD students can be employed as research assistants

Conclusions

Implementation of **Bologna Process** (2004) addressed first the transformation towards bachelor and master degree programs

Doctoral studies were adapted delayed according the **Salzburg Principles** and **Salzburg II**. Main changes were:

- advisory team
- supervisor \neq reviewer
- funding guaranteed (?)

Must be **continually adapted** according national and international rules and suggestions

Quality assurance and **funding** are the strongest challenges



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