



Universität für Bodenkultur Wien  
University of Natural Resources  
and Life Sciences, Vienna

# The Austrian Higher Education System at Doctoral Study level with special emphasis on programs at BOKU University

*Hans-Peter Kaul, Margarita Calderón-Peter & Katarzyna Retzer*

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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.”**

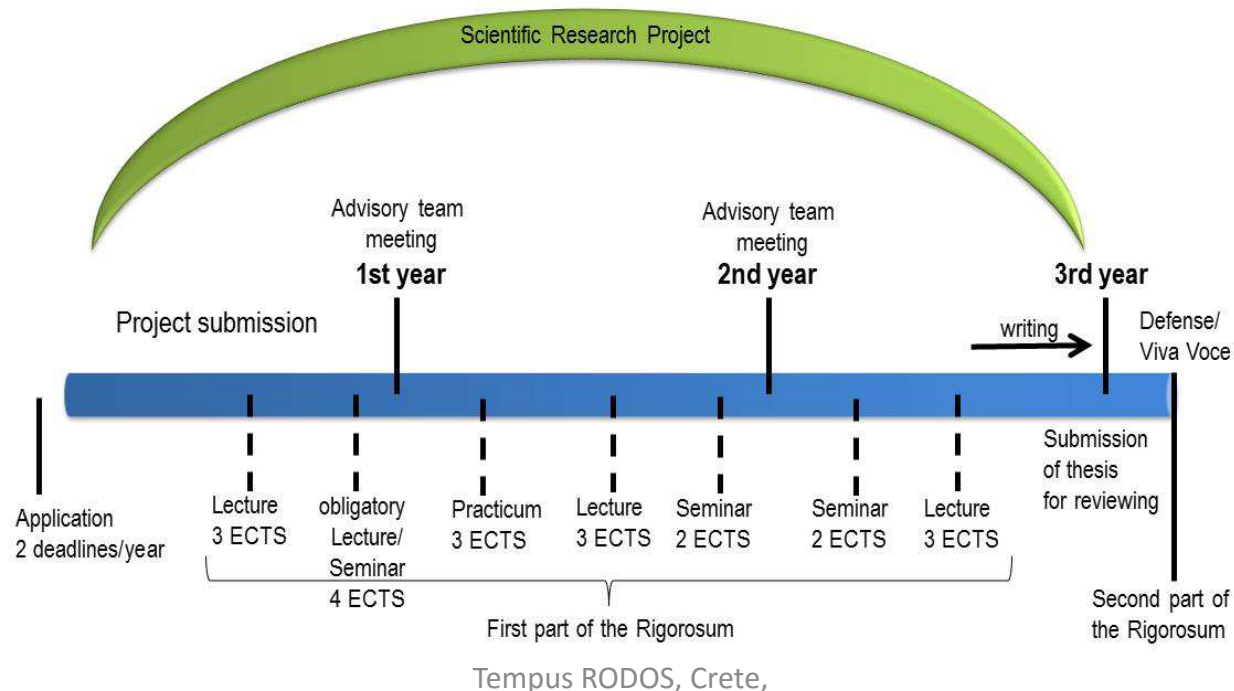
## Two BOKU doctoral schools

- **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



**Universität für Bodenkultur Wien**  
University of Natural Resources  
and Life Sciences, Vienna

## Univ.Prof. Dr. Hans-Peter Kaul

Professor in Agronomy and Grassland Management  
Head of Department  
Head of Study Commission of BOKU Senate



## Department of Crop Sciences Division of Agronomy

Gregor Mendel-Strasse 33, A-1180 Vienna, Austria and  
Konrad Lorenz-Strasse 24, A-3430 Tulln, Austria  
phone: +43 1 47654-3302, -3306  
hans-peter.kaul@boku.ac.at , [www.dnw.boku.ac.at](http://www.dnw.boku.ac.at)

