

Academic Introduction

Master of Science

Operations Research and Business Analytics

Natalie Nowak, 09/10/2024

Please note, no guarantee for changes or mistakes which appear in the presentation.

Welcome!

- ▶ **Your Host Today:** M.Sc. Natalie Nowak
- ▶ Chair of Financial Management and Innovation Finance
 - ▶ Research Assistant
 - ▶ G22-B103a
 - ▶ www.ifm.ovgu.de



Natalie Nowak

- ▶ **Program Director ORBA:**
Prof. Dr. Elmar Lukas
- ▶ Chair of Financial Management and Innovation Finance
 - ▶ G22-B102a
 - ▶ www.ifm.ovgu.de
- ▶ Consultation only by appointment
 - ▶ Registration via email required
 - ▶ LS_ifm@ovgu.de



Prof. Dr. Lukas

- ▶ **Degree:** Master of Science
- ▶ **Duration:** 4 semesters regular study time
- ▶ **Language:** English exclusively
- ▶ **Type:** Research, strong theoretical-oriented
- ▶ **Credits:** 120 ECTS (including Master thesis)
- ▶ **Enrollment:** Winter term

The ORBA Program: Objectives

- ▶ Quantitative Modelling and Algorithms
- ▶ Data Analysis and Big Data Methods
- ▶ Analytical Tools and Skills

The ORBA study program is based on a cooperation between the departments/faculties of Economics and Management (WW), Computer Science (INF) and Mathematics (MATH).



Important ORBA-related Chairs at WW

Financial Management
and Innovation Finance
(Prof. Lukas)



Prof. Lukas

Data-driven Decision
Support (AIBDS)
(Jun.-Prof. Heinrich)



Jun.-Prof. Heinrich

Operations Management
(Prof. Neufeld)



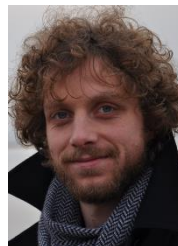
Prof. Neufeld

Lectureship Production
and Logistics
(Prof. Kleber)



Prof. Kleber

Management Science
(Prof. Ulmer)



Prof. Ulmer

ORBA Program: Recommended Structure

1. Semester	2. Semester	3. Semester	4. Semester
Business Analytics Compulsory Elective 5 ECTS	Business Analytics Compulsory Elective 5 ECTS	Compulsory Elective 5 ECTS	Master Thesis + Research Seminar 30 ECTS
Business Analytics Compulsory Elective 5 ECTS	Operations Research Compulsory Elective 5 ECTS	Compulsory Elective 5 ECTS	
Operations Research Compulsory Elective 5 ECTS	Operations Research Compulsory Elective 5 ECTS	Compulsory Elective CoMeT 5 ECTS	
Compulsory Elective 5 ECTS	Compulsory Elective 5 ECTS	Scientific Project 15 ECTS	
Compulsory Elective 5 ECTS	Master's Seminar 10 ECTS		
Scientific Work 5 ECTS			

ORBA Program: Core Areas

1. Semester	2. Semester	3. Semester	4. Semester
Business Analytics Compulsory Elective 5 ECTS	Business Analytics Compulsory Elective 5 ECTS		
Business Analytics Compulsory Elective 5 ECTS	Operations Research Compulsory Elective 5 ECTS		
Operations Research Compulsory Elective 5 ECTS	Operations Research Compulsory Elective 5 ECTS		

- ▶ You have to take **compulsory elective** modules in the two **core areas**
 - ▶ Operations Research and
 - ▶ Business Analytics
- ▶ In each core area, you have to obtain **at least 15 ECTS**.
- ▶ Offered modules are usually **lectures** with 5 (or 10) ECTS.
- ▶ In general, offered compulsory electives may change every semester/year.
- ▶ In theory, **failed exams** for compulsory electives can be repeated, infinitely, but
 - ▶ exams are usually only offered once a year, or
 - ▶ in some cases, never again.

▶ Business Analytics (WW, FIN)

- ▶ AI-based Decision Support I (Heinrich)
- ▶ Datenbanken (Database Concepts) (Saake)
- ▶ Machine Learning (Nürnberger)



FACULTY OF
ECONOMICS AND MANAGEMENT



FACULTY OF
COMPUTER SCIENCE

▶ Operations Research (WW, MATH)

- ▶ Computational Transportation (Ulmer)
- ▶ Advanced Computational Transportation (Zehtabian)
- ▶ Modelling and Solving Optimization Problems (Friedrich)



FACULTY OF
ECONOMICS AND MANAGEMENT



FACULTY OF
MATHEMATICS

ORBA Program: Compulsory Elective

1. Semester	2. Semester	3. Semester	4. Semester
Business Analytics Compulsory Elective 5 ECTS	Business Analytics Compulsory Elective 5 ECTS	Compulsory Elective 5 ECTS	
Business Analytics Compulsory Elective 5 ECTS	Operations Research Compulsory Elective 5 ECTS	Compulsory Elective 5 ECTS	
Operations Research Compulsory Elective 5 ECTS	Operations Research Compulsory Elective 5 ECTS	Compulsory Elective CoMeT 5 ECTS	
Compulsory Elective 5 ECTS	Compulsory Elective 5 ECTS	Scientific Project 15 ECTS	
Compulsory Elective 5 ECTS	Master's Seminar 10 ECTS		
Scientific Work 5 ECTS			

- ▶ In the compulsory elective area, you have to take **at least 60 ECTS**, which include the following:
 - ▶ 5 ECTS in the area of **Scientific work** as well as
 - ▶ at least 50 ECTS in the area of specialization with at least one **Seminar** (10 ECTS) and exactly one **Scientific Project** (15 ECTS),
 - ▶ up to 5 ECTS can be earned in the area of “**CoMeT** – Competencies and Methods Training”.
- ▶ It is **recommended** to write your master thesis in your specialization as well.

▶ Scientific Work for ORBA

- ▶ Course to acquire **basic elements of scientific working methods** (researching, citing, writing scientific literature/texts), receive a summary of **elementary concepts and methods** from **analysis, linear algebra** and **statistics** and learn basic use of **programming languages**
- ▶ 5 ECTS to be taken in the first semester (only offered in winter terms)

▶ CoMeT – Competencies and Methods Training

- ▶ up to 5 ECTS can be earned to acquire key skills with focus on personal development or student commitment

► Modules (selection)

- Advanced Game Theory (Hoffmann)
- Business Decision Making (Raith)
- Downside Risk (Reichling)
- Econometrics (Noth)
- Evaluation of Macro-Finance Policies (Tonzer)
- Foundation for Finance (Li)
- International Corporate Strategy (Schlägel)
- International Taxation (Eichfelder)
- Introduction to Computer Science for Engineers (Braune)
- Operations Research Applications in Production Planning (Neufeld)
- Stochastic Processes (Wendler)
- Sustainability and Finance (Kupfer)



*Dr.
Hoffmann*



*Prof.
Raith*



*Prof.
Reichling*



*Prof.
Noth*



*Prof.
Tonzer*



JP Li



*Prof.
Schlägel*



*Prof.
Eichfelder*



*Prof.
Braune*



*Prof.
Neufeld*



*Dr.
Wendler*



*Dr.
Kupfer*

- ▶ In each semester, **Seminars** and a **Scientific Projects** will be offered
- ▶ Note: You have to **register well in advance!**
 - ▶ A faculty-wide, multi-stage registration process usually starts at the end of the **previous semester**.
 - ▶ Keep yourself updated [here](#).
- ▶ If **failed**, seminars and projects can only be retaken twice.
- ▶ Find all information about requirements and contents on the professors' webpages, e.g.
 - ▶ [Chair in Financial Management and Innovation Finance](#) (Prof. Lukas)
 - ▶ [Chair of Operations Management](#) (Prof. Neufeld)
 - ▶ [Chair of Management Science](#) (Prof. Ulmer)
 - ▶ [Chair AIBDS](#) (JP Heinrich)
 - ▶ [Lectureship Production and Logistics](#) (Prof. Kleber)

ORBA Program: Master Thesis

1. Semester	2. Semester	3. Semester	4. Semester
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Business Analytics Compulsory Elective 5 ECTS	Operations Research Compulsory Elective 5 ECTS	Compulsory Elective 5 ECTS	
Operations Research Compulsory Elective 5 ECTS	Operations Research Compulsory Elective 5 ECTS	Compulsory Elective CoMeT 5 ECTS	
Compulsory Elective 5 ECTS	Compulsory Elective 5 ECTS	Scientific Project 15 ECTS	
Compulsory Elective 5 ECTS	Master's Seminar 10 ECTS		
Scientific Work 5 ECTS			

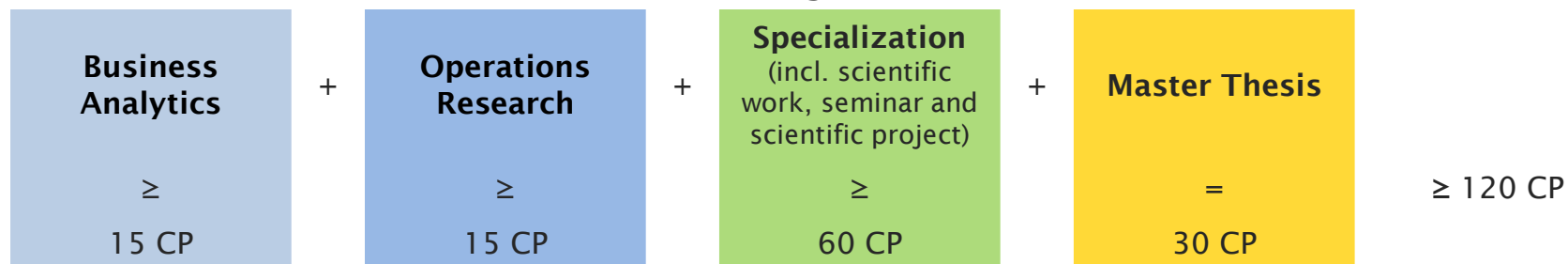
- ▶ **Application** at preferred chair is necessary
 - ▶ Application at the Chair of Financial Management and Innovation Finance via form (see [website](#)). The deadline for the application is 15.09. for winter semesters and 15.03. for summer semesters.
 - ▶ Deadline for the Chair of Management Science, the Chair of Operation Management, Chair of AIBDS and Lectureship for Production and Logistics is usually 01.09. for winter semesters and 01.03. for summer semesters (see websites).
- ▶ Admission **requirements** (no exceptions!):
 - ▶ min. 75 ECTS in total, among which
 - min. 15 ECTS in both core areas, each,
 - 5 ECTS in the area “Scientific work”, and
 - 10 ECTS in at least one seminar.
- ▶ **Thesis duration:** 22 weeks incl. 4 weeks reading time
- ▶ **Max. one retake** in the following semester if failed.



ORBA Program: Recommended Structure

1. Semester	2. Semester	3. Semester	4. Semester
Business Analytics Compulsory Elective 5 ECTS	Business Analytics Compulsory Elective 5 ECTS	Compulsory Elective 5 ECTS	Master Thesis + Research Seminar 30 ECTS
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Compulsory Elective 5 ECTS	Compulsory Elective 5 ECTS	Scientific Project 15 ECTS	
Compulsory Elective 5 ECTS	Master's Seminar 10 ECTS		
Scientific Work 5 ECTS			

You will graduate if



Course List for Master Programs

- ▶ Each semester, before the start of the respective examination registration period (key term: **course list**) the Faculty Council will decide upon the allocation of the modules to the area of specialization and on the specific compulsory elective areas of the respective study program
- ▶ Changes to the course list possible on both sides until **30.10.2024**
- ▶ FWW homepage → Teaching → During your Studies → Study Organization and Documents → Course List

Course List

On the following page you will find the currently valid course list for the current semester.

Bachelor Programs



Here you can find the current version of the course list for your Bachelor program **BWL, VWL - WuG, IM** or **IBE**.

› [SoSe 2024](#) (version: 13.05.2024)

› [WiSe 2023/2024](#) (version: 08.11.2023)

The course lists from past semesters can be found [here](#).

Master Programs



Here you can find the current version of the course list for your Master program **BWL/BE, EPA, IMME, FINEC** und **ORBA**.

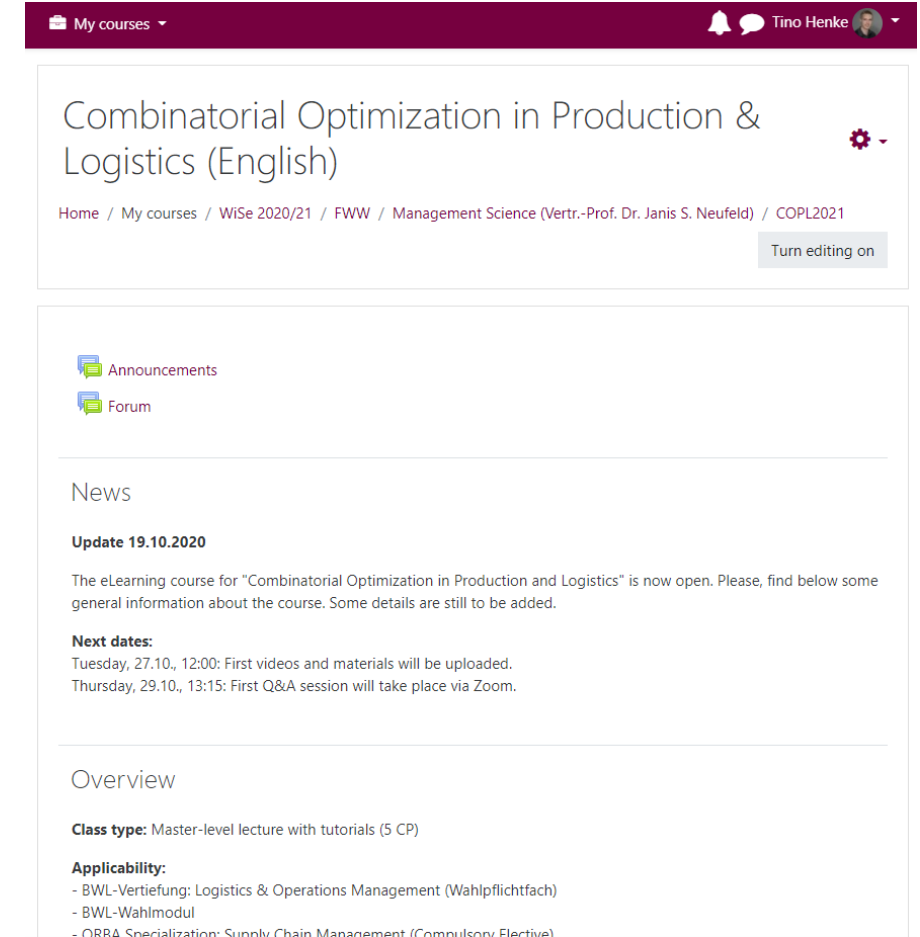
› [SoSe 2024](#) (version: 13.05.2024)

› [WiSe 2023/2024](#) (version: 03.11.2023)

The course lists from past semesters can be found [here](#).

Publication of the course list after the Faculty Council meeting on 06.11.2024

- ▶ Almost all lecturers provide their material online via <https://elearning.ovgu.de>
- ▶ There, you can access class material and receive announcements via email.
- ▶ There is also a “course” entitled **Master Program ORBA** containing relevant announcements for ORBA students.
 - ▶ [Link](#)



The screenshot shows a user interface for an eLearning course. At the top, there is a navigation bar with 'My courses' and a user profile for 'Tino Henke'. The main heading is 'Combinatorial Optimization in Production & Logistics (English)'. Below the heading, there is a breadcrumb trail: 'Home / My courses / WiSe 2020/21 / FWW / Management Science (Vertr.-Prof. Dr. Janis S. Neufeld) / COPL2021'. A 'Turn editing on' button is visible. The page contains sections for 'Announcements' and 'Forum'. The 'News' section has an update from 19.10.2020 stating that the course is now open and providing the next dates: Tuesday, 27.10., 12:00 for video uploads and Thursday, 29.10., 13:15 for a Q&A session. The 'Overview' section lists the class type as 'Master-level lecture with tutorials (5 CP)' and the applicability as 'BWL-Vertiefung: Logistics & Operations Management (Wahlpflichtfach)', 'BWL-Wahlmodul', and 'ORBA Specialization: Supply Chain Management (Compulsory Elective)'.

Study and Exam Regulations


- ▶ All official documents can be found on the [ISP webpage](#).
- ▶ It is strongly recommended to read the [study/exam regulation documents](#) and [module handbook entries](#) for the classes you consider to choose!

WELCOME HALL | BACHELOR | MASTER | SUPPORT | FAQs | STUDY ABROAD | DOCUMENTS | GET INVOLVED

Home > Master > ORBA > Program Structure & Courses | Tour of OVGU Campus | ORBA at a Glance | Students' Documents


Operations Research and Business Analytics (ORBA)

Study Program Details




Are you interested in studying at our school? Find more information about application procedure, school dates, and much more here!

Program Structure & Courses




Year	1	2	3
Business Analytics I	Business Analytics II	Business Analytics III	Master Thesis
Operations Research I	Operations Research II	Operations Research III	
Mathematical Foundations	Mathematical Foundations	Mathematical Foundations	
Mathematical Foundations	Mathematical Foundations	Mathematical Foundations	
Mathematical Foundations	Mathematical Foundations	Mathematical Foundations	

OVGU Campus Video




Tour through our compact, modern, bike friendly and cosmopolitan campus. Close to the city center, near to parks, and the river Elbe.


Applicants' Checklist



ORBA at a Glance



Students' Documents



Some Important Deadlines

- ▶ Registration for **Exams** via LSF:
 - ▶ For WW classes: check website of **examination office**
 - ▶ **November 15 – November 30, 2024**
 - ▶ For other faculties, esp. INF: may be different → check websites
 - ▶ **No registration, no exam, no exception!**
- ▶ Registration/Application for **Seminars and Scientific Projects**:
 - ▶ Usually mid-February for summer semester and end-July for winter semester → check website of **dean's office of study affairs**.
- ▶ Application for **Master Theses**:
 - ▶ March 15th and September 15th for Chair of Financial Management and Innovation Finance
 - ▶ Usually March 1st and September 1st for Management Science, Operation Management, AIBDS and Lectureship for Production and Logistics → Check **chairs' websites**



- ▶ Exams are usually offered only once at the end of the lecture time.
- ▶ **Withdrawal from exams** is usually possible if done three days before the exam. Check information from the module handbook/examination office!
- ▶ **If you fail an exam**, you can retake it as often as you want, or choose another module/exam to take in the next semester.
 - ▶ Note that not all exams are offered every semester!
- ▶ Already taken (and passed) exams cannot be retaken.
- ▶ **Post-exam review is possible.** See announcement on the professor's webpage.



Check announcements!



- ▶ The workload for one module is measured in **credit points** (CP). Most modules have a workload of 5 CP.
- ▶ ECTS = European Credit Transfer System
 - ▶ 1 CP = 30 hour workload for students
 - ▶ 5 CP = 150 hour workload for students
- ▶ To pass some modules, **tutorials and submitting homework** are required!
 - ▶ See announcements in class/ check module handbook!
- ▶ Even if not mandatory, we strongly recommend **participation** in lectures and tutorials. Be prepared for the tutorials.
- ▶ Preparation for the exams starts **NOW!**



- ▶ **ISP Office:** For general questions on your ORBA schedule
 - ▶ Ms. Grit Voigt, student advising hours Tuesdays 10-11:30 and Thursdays 10:00-11:30 and 14:00 *by appointments only*, www.isp.ovgu.de, isp@ovgu.de
- ▶ **Examination Offices:** For formal questions on deadlines, exams, grades
 - ▶ For WW, MATH modules: Dr. Toni Richter, pruefungsamt@ovgu.de
 - ▶ For INF modules: Ms. Warnecke-Timme, fin-pruefungsamt@ovgu.de
- ▶ **Lecture Catalogue and Exam Registration:** LSF
- ▶ Official ORBA Study Regulation Documents: ISP Office
- ▶ For **ORBA questions** that could not be resolved by above entities: Study Program Director Prof. Lukas, LS_ifm@ovgu.de



- ▶ Responsible for studying successfully: **YOU!**
- ▶ Responsible for keeping you informed: **YOU!**
- ▶ Responsible for knowing when to do what: No one else, but... YOU! 😊
- ▶ Hence, **keep yourself informed**, especially on
 - ▶ registration deadlines,
 - ▶ course offers and requirements,
 - ▶ study regulations, etc.,and **plan ahead!**
- ▶ First: **search and read**, second: ask.

Communication with professors, staff of the chairs or university:

- ▶ Only write an email, if
 - ▶ You could not find anything concerning your question online
 - ▶ None of your fellow students could help you
- ▶ Avoid writing directly to the professor for questions concerning the lecture, instead write to the research assistants responsible for the corresponding exercise.
- ▶ Write in a **respectful** and **formal** manner
- ▶ Be aware of the cultural manners in the German university system
- ▶ There are **guidelines online** (a.o. on the homepage of the Chair in Financial Management and Innovation Finance)

5 steps to writing a mail

- ▶ Email subject line: Include the subject of your mail
 - ▶ E.g. “Financial Engineering/ Lecture: Question about XY”, “1st Appointment concerning Thesis”
- ▶ Salutation: Make sure you address the person correctly (Title and Surname, **not** by the first name!)
 - ▶ E.g. “Dear Professor Lukas,”, “Dear Dr. Kupfer,”, “Dear Ms. Cordes,”
- ▶ Background information: If you haven’t talked to the person personally you might include some background information
 - ▶ E.g. “I am a student of the ORBA program and currently taking part in your lecture Financial Engineering.”
- ▶ Purpose of your message: Why are you writing to the person? Get to the point, only give information necessary for your question/purpose.
- ▶ Signature: End your mail in a respectful way
 - ▶ E.g.: “I look forward to hearing from you.”, “I look forward to your reply.”
 - ▶ Sign off with your full name, followed by your matriculation number
“Yours sincerely, [Full name (Matriculation Number)]”, “Best regards, [Full name (Matriculation Number)]”

- ▶ ORBA is a study program to teach you **analytical thinking**.
- ▶ Hence, you shouldn't only learn, but also **understand** what you learn. Ask yourself:
 - ▶ Why is this and that reasonable for the intended purpose?
 - ▶ Why does it work?
 - ▶ What would I do (differently)?
- ▶ Don't only rely on lectures and tutorials, but also take matters into your own hands:
 - ▶ read books (or websites),
 - ▶ watch videos,
 - ▶ create your own exercises.

- ▶ *Students International Mentoring Program – Social Organisational Network*
 - ▶ Faculty Mentoring/Buddy program
- ▶ Mentors with study and living experience in Magdeburg
- ▶ Activities and Assistance
- ▶ Register for an online buddy via an Registration Form & send it to the ISP
 - ▶ Email (isp@ovgu.de)
- ▶ More information here



Questions? 😊

Welcome to ORBA, again,
stay healthy
and
have a good start at OVGU 😊