Module Descriptions

Master of Science Advanced Oncology

Examination Regulations in the Version of: 2012
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Interdisciplinary Oncology - Module 2
Modules referring to Modules 2 to 4

Code 8830771672

ECTS credits 11

Attendance time 21.5

Language of instruction English

Duration 1 Semester

Cycle each Winter Semester

Coordinator Prof. Dr. Christian Buske

Instructor(s) Thomas Barth, Detlef Bartkowiak, Sotirios Bisdas, Martin Bommer, Joachim Bredée, Lars Bullinger, Donald Bunjes, Christian Buske, Lama El-Zoubeidi, Claus-Stephan Ernst, Jörg Fahrer, Michaela Feuring-Buske, Verena Gaidzik, Hartmut Geiger, Stefan Holdenrieder, Marko Kommann, Florian Kuchenbauer, Michael Kühl, Frank Leithäuser, Jochen Lennerz, Ralf Marienfeld, Reinhard Meier, Johannes Merk, Daniel Mertens, Julia Mühlberger, Gabriele Nagel, Henning Neubauer, Franz Oswald, Peter Paschka, Vijay Rawat, Arefeh Rouhi, Uta Schmidt-Straßburger, Claudia Scholl, Christian Sinzger, Daniel Starczynowski, Sabine Stienen, Julia Stingl, Melissa Troester, Andrew Westhoff, Thomas Wiegel, Frank Winkler

Allocation of study programmes

This module on Interdisciplinary Oncology is an essential part of the non-consecutive MSc Advanced Oncology study program.

Recommended prerequisites

You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

Learning objectives

This module aims to improve your

- knowledge of the molecular and cellular biology of cancer and your ability to extract molecular data in-silico for a given question
- knowledge of modern diagnostic tools in oncology and your ability to apply them appropriately
- knowledge of classical and modern therapeutic approaches and your ability to apply them appropriately and
- knowledge of tumor epidemiology and your ability to apply it to a given question
- communication and presentation skills as well as your scientific writing
This module is divided into four courses, which are being described in more detail on the subsequent pages.

- The first course of this module deals with **Cellular and molecular biology of cancer**. It will introduce you to or reinforce your knowledge of the molecular basis of cancer development.
- The second course of this module deals with **Diagnostics**. It will introduce you to or reinforce your knowledge of molecular and technical diagnostic tools and procedures for the diagnosis of cancer.
- The third course of this module deals with **Principles of Therapy and Treatment**. It will introduce you to or reinforce your knowledge of cancer therapy on a molecular, medical and technical level.
- The fourth course of this module deals with **Epidemiology**. It will introduce you to or reinforce your knowledge of cancer epidemiology and its application for measuring outcomes.

At the end of the module, you will sit your examination and engage in communication and presentation training, training in scientific writing and practical training in molecular diagnostics.

This module is divided into four courses. Each course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and the secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators.

Module 2 on Interdisciplinary Oncology contains interactive e-lectures, literature, self-assessments and forums for an optimized learning environment. At the end of this module, you must participate in person in a multiple choice quiz (Module examination).

We estimate that the successful completion of this module requires 330 hours of work (11 ECTS).

Understanding the content of this module should enable you to understand all the facets of the subsequent modules on Clinical Research and Advanced/Integrated Therapies as well as Management (**subject-specific and subject-overarching competencies**). The module contents should enable you to discuss the taught concepts in your Master's thesis and your professional life in a meaningful and scientifically sound manner and to put novel developments in drug discovery,
diagnostics, treatment and epidemiology into perspective without external help (methodological competencies and key skills).
## Cellular and Molecular Biology of Cancer

### Modules referring to Interdisciplinary Oncology - Module 2

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<td>Duration</td>
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<td>Prof. Dr. Christian Buske</td>
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<tr>
<td>Instructor(s)</td>
<td>Prof. Dr. Christian Buske, Dr. Verena Gaidzik, Prof. Dr. Hartmut Geiger, Dr. Florian Kuchenbauer, Prof. Dr. Michael Kühl, PD Dr. Daniel Mertens, Prof. Dr. Franz Oswald, PD Dr. Peter Paschka, Dr. Vijay Rawat (PhD), Dr. Arefeh Rouhi (PhD), Prof. Dr. Claudia Scholli, Prof. Dr. Christian Sinzger, Dr. Daniel Starczynowski (PhD), Dr. Andrew Westhoff (PhD), Prof. Dr. Frank Winkler</td>
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### Allocation of study programmes

This course is part of Module 2 on Interdisciplinary Oncology of the non-consecutive MSc Advanced Oncology study program.

### Recommended prerequisites

You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

### Learning objectives

By completing this course, we expect you to be aware of and to know about

- the structure and function of genes, RNA and DNA
- the cell cycle
- the mechanisms of apoptosis and senescence
- the different steps and players in cancerogenesis like oncogenes, transcription factors, growth factors, tumor suppressor genes
- the processes of tumor cell invasion and metastasis
- the role of the innate immune system in cancerogenesis
- new insights in the biology and function of cancer stem cells

You should be able to

- perform basic molecular genetic in-silico analyses yourselves
- associate new data on molecular targets
- explain theories of tumor and metastasis formation
- explain the known immune and apoptosis escape mechanisms and how to target them
• explain the cancer stem cell concept and its implications for cancer therapies
• explain how oncogenic viruses conquer human cells for their own purposes thereby rendering them (pre)malignant

by applying the knowledge you have gained from this course.

Syllabus This course offers you interactive online lectures and primary literature accompanied by self-assessments during and after the lectures on the following topics:
• cell cycle
• apoptosis
• senescence
• gene structure
• epigenetics
• micro-RNA-/protein processing
• innate immune system and cancer
• oncogenes
• transcription factors
• growth factors
• tumor suppressor genes
• tumor invasion and metastasis
• cancer stem cells
• RNAi
• oncogenic viruses

You are welcome to use the interactive forums to contact the respective lecturers in the case of questions concerning the lectures or the implications of the lectures.

Literature This course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and the secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators.

Teaching and learning methods This compulsory course is part of Module 2 on Interdisciplinary Oncology. It contains interactive e-lectures, literature, self-assessments and forums for an optimized learning environment.

At the end of this course, you must participate in a mandatory pre-exam assignment, a multiple choice quiz that you can answer from your place of studies but which you should pass by answering at least 60% of the questions correctly. You may repeat this assessment as often as you need in order to pass according to the Subject-specific Study Regulations.

Workload We calculate that the successful completion of this course requires 60 hours of work (2 ECTS).

Assessment The award of the credit points in the ungraded module is based on a written exam.
Grading procedure  The module is not graded.

Basis for  This course should enable you to understand all the facets of the subsequent modules and on Clinical Research and Advanced/Integrated Therapies (subject-specific and subject-overarching competencies).

The course contents should enable you to discuss the taught concepts in your Master's thesis and your professional life in a meaningful and scientifically sound manner (methodological competencies, key skills).
Diagnostics
Modules referring to Interdisciplinary Oncology - Module 2

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<td>Coordinator</td>
<td>Prof. Dr. Christian Buske</td>
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Instructor(s) | Prof. Dr. Thomas Barth, PD Dr. Sotirios Bisdas, PD Dr. Martin Bommer, Prof. Dr. Lars Bullinger, PD Dr. Michaela Feuring-Buske, Dr. Lama El-Zoubeidi, PD Dr. Stefan Holdenrieder, Dr. Thomas Krohn, PD Dr. Frank Leithäuser, PD Dr. Jochen Lennerz, Prof. Dr. Ralf Marienfeld, Prof. Dr. Reinhard Meier, PD Dr. Henning Neubauer |

Allocation of study programmes | This course is part of Module 2 on Interdisciplinary Oncology of the non-consecutive MSc Advanced Oncology study program. |

Recommended prerequisites | You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined in the admission statutes of Ulm University. |

Learning objectives | By completing this course you should be aware and know about
- the options and limitations of modern diagnostic tools in cancer evaluation
- the use and application of laboratory tests, serological bio markers and tumor markers
- the role of cytological examinations in diagnosis
- new applications of flow cytometry in diagnosis and therapy
- the methods, promises and possibilities of molecular and genetic techniques including microarrays and CHIP technology
- the benefits and pitfalls of new imaging techniques in radiology
- the options of interventional radiology
- the benefits and pitfalls of new imaging techniques in nuclear medicine

Upon successful completion of this course we expect you to be able to
- communicate in a qualified manner with your pathologist/molecular pathologist about molecular diagnoses, their underlying technical details and their implications for the patients
• order appropriate analyses for your patients based on the known molecular specifics of each disease
• order the appropriate analysis of biomarkers for a patient in your hospital/your clinical trial
• interpret the data of microarray (GeneChip) and Next-Generation-Sequencing approaches meaningfully while bearing in mind the technical limitations leading to these data
• order the appropriate cytological analysis for suspected blood-born malignancies
• communicate in a qualified manner with your attending radiologist/ neuro-radiologist
• communicate in a qualified manner with specialists in nuclear medicine should the need arise

by employing the knowledge you have gained from the attendance of this course.

Syllabus

This course offers you interactive online lectures and primary literature accompanied by self-assessments during and after the lectures on the following topics:

• modern diagnostic tools (Her2, PDGFR, Clonality, KRAS, Pathology: EGFR receptor)
• CHIP technology; Next-Generation Sequencing
• cytological examinations
• flow cytometry
• biomarkers
• radiology
• neuro-radiology
• nuclear medicine (PET/CT)

You are welcome to use the interactive forums to contact the respective lecturers in the case of questions concerning the lectures or the implications of the lectures.

Literature

This course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and the secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators.

Teaching and learning methods

This compulsory course is part of Module 2 on Interdisciplinary Oncology. It contains interactive e-lectures, literature, self-assessments and forums for an optimized learning environment.

At the end of this course, you must participate in a mandatory pre-exam assignment, a multiple choice quiz that you can answer from your place of studies but which you should pass by answering at least 60% of the questions correctly. You may repeat this assessment as often as you need in order to pass according to the Subject-specific Study Regulations.

Workload

We calculate that the successful completion of this course requires 60 hours of work (2 ECTS).
**Assessment**  The award of the credit points in the ungraded module is based on a written exam.

**Grading procedure**  The module is not graded.

**Basis for**  This course should enable you to understand all the diagnostics employed in Oncology and is thus the basis for the subsequent modules on Clinical Research and Advanced/Integrated Therapies, but also Management (**subject-specific and subject-overarching competencies**). The course contents should enable you to discuss the taught concepts in your Master's thesis and your professional life in a meaningful and scientifically sound manner and to treat patients appropriately (**metholodological competency, key skills**).
# Principles of Therapy and Treatment

## Modules referring to Interdisciplinary Oncology - Module 2

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<td>Duration</td>
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## Allocation of study programmes

This course is part of Module 2 on Interdisciplinary Oncology of the non-consecutive MSc Advanced Oncology study program.

## Recommended prerequisites

You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

## Learning objectives

By completing this course, we expect you to be aware of and to know about:

- the different anti-tumor immunotherapy strategies
- the curative and palliative role of surgery in cancer diagnosis and treatment
- the way of action, the toxicity, the pharmacokinetics of different chemotherapeutic agents
- the development of targeted drugs
- the way to individualized therapy
- differences of radiation types, technical features of advanced therapeutic radiation sources and their use in different tumors
- genetic counselling and when it is indicated
- the role and the indication of stem cell transplantation, the benefits and complications

You should be able to:

- explain the principles of immunotherapy to patients, peers and interested scientists and assess the pros and cons of different immunotherapeutic strategies targeting innate or adaptive immunity or both
• explain the principles of curative and palliative surgery to patients, peers and interested scientists and communicate with your surgeons meaningfully in deciding, providing and following up on surgical treatment for your patients
• assess different chemotherapeutic agents according to their mode of action and their toxicities thereby providing meaningful choices for your patients according to their treatment preferences, when applicable
• advise patients, peers and interested colleagues and the proper conduct of individualized therapy based on patients preferences and molecular targets
• differentiate between the meaningful applications of radiotherapy for patients and observe proper radioprotection
• advise on genetic counselling
• advise on benefits and complications of stem cell transplantation

by applying the knowledge you have gained from this course.

Syllabus
This course offers you interactive online lectures and primary literature accompanied by self-assessments during and after the lectures on the following topics:

• principles of anticancer immunotherapy
• surgery (lung cancer; principles of surgical treatment of colon and rectal cancer)
• general chemotherapy
• specific chemotherapy
• individualized therapy (AML-modell)
• radiotherapy
• radiation physics
• radiation biology
• genetic counselling
• stem cell transplantation

You are welcome to use the interactive forums to contact the respective lecturers in the case of questions concerning the lectures or the implications of the lectures.

Literature
This course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and the secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators.

Teaching and learning methods
This compulsory course is part of Module 2 on Interdisciplinary Oncology. It contains interactive e-lectures, literature, self-assessments and forums for an optimized learning environment.

At the end of this course, you must participate in a mandatory pre-exam assignment, a multiple choice quiz that you can answer from your place of studies but which you should pass by answering at least 60% of the questions correctly. You may repeat this assessment as often as you need in order to pass according to the Subject-specific Study Regulations.

Workload
We estimate that the successful completion of this course requires 90 hours of work (3 ECTS).
<table>
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<th><strong>Assessment</strong></th>
<th>The award of the credit points in the ungraded module is based on a written exam.</th>
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<tr>
<td><strong>Grading procedure</strong></td>
<td>The module is not graded.</td>
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<td><strong>Basis for</strong></td>
<td>This course should enable you to understand all the facets of the subsequent modules on Clinical Research and Advanced/Integrated Therapies as well as Management (subject-specific and subject-overarching competencies). The course contents should enable you to discuss the taught concepts in your Master’s thesis and your professional life in a meaningful and scientifically sound manner (methodological competencies and key skills).</td>
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# Epidemiology

Modules referring to Interdisciplinary Oncology - Module 2

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<td>Cycle</td>
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<td>Coordinator</td>
<td>Prof. Dr. Christian Buske</td>
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<tr>
<td>Instructor(s)</td>
<td>Prof. Dr. Gabriele Nagel, Dr. Melissa Troester</td>
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### Allocation of study programmes

This course is part of Module 2 on Interdisciplinary Oncology of the non-consecutive MSc Advanced Oncology study program.

### Recommended prerequisites

You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

### Learning objectives

By completing this course, we expect you to be aware of and to know about:

- the measures of disease burden
- statistical methods in epidemiology
- concepts in cancer epidemiology and etiology
- the use of biomarkers in cancer epidemiology

You should be able to:

- appreciate registry data and their quality
- identify populations at risk for developing cancer(s) based on environmental and lifestyle conditions
- communicate with health care professionals about the topics above in an informed and meaningful manner

by applying the knowledge you have gained from this course.

### Syllabus

This course offers you interactive online lectures and primary literature accompanied by self-assessments during and after the lectures on the following topics:
• cancer statistics (overview, incidence, prevalence, mortality, survival, induction and latent periods)
• cancer etiology and progression: risk factors (mutation, chemical and radiation carcinogenesis, infection and inflammation, life style and nutrition, hormones, genetics), prevention
• cancer epidemiology
• biomarkers in cancer epidemiology

You are welcome to use the interactive forums to contact the respective lecturers in the case of questions concerning the lectures or the implications of the lectures.

### Literature
This course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and the secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators.

### Teaching and learning methods
This compulsory course is part of Module 2 on Interdisciplinary Oncology. It contains interactive e-lectures, literature, self-assessments and forums for an optimized learning environment.

At the end of this course, you must participate in a mandatory pre-exam assignment, a multiple choice quiz that you can answer from your place of studies but which you should pass by answering at least 60% of the questions correctly. You can repeat this assessment as often as you need in order to pass according to the Subject-specific Study Regulations.

### Workload
We calculate that the successful completion of this course requires 30 hours of work (1 ECTS).

### Assessment
The award of the credit points in the ungraded module is based on a written exam.

### Grading procedure
The module is not graded.

### Basis for
This course should enable you to understand all the facets of the subsequent modules on Clinical Research and Advanced/Integrated Therapies as well as Management (subject-specific and subject-overarching competencies). The course contents should enable you to discuss the taught concepts in your Master's thesis and your professional life in a meaningful and scientifically sound manner (methodological competencies and key skills).
Interdisciplinary Oncology: On-Site
Modules referring to Interdisciplinary Oncology - Module 2

**Code** 8830771226

**ECTS credits** 3

**Attendance time** 1.5

**Language of instruction** English

**Duration** 3 days Semester

**Cycle** each Winter Semester

**Coordinator** Prof. Dr. Christian Buske

**Instructor(s)** Prof. Dr. Christian Buske, PD Dr. Benjamin Mayer, Prof. Dr. Rainer Muche, Prof. Dr. Dietrich Rothenbacher, Dr. Uta Schmidt-Straßburger, Ernestine Stösser-Jost, Communication & Presentation coach, Personal coach

**Allocation of study programmes** This seminar is part of Module 2 of the MSc Advanced Oncology study program.

**Recommended prerequisites** You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

**Learning objectives** After this seminar, you will have

- transferred your knowledge of the entire module 2 to translational research
- been aware of biometry basics
- improved your communication and presentation skills
- repeated and practiced the basics of scientific writing
- repeated and practiced proper referencing
- prepared your Master's thesis in terms of scope and feasibility as well as supervision

**Syllabus** During this seminar, you will

- sit your written module 2 examination (multiple choice questions)
- give feedback on Module 2
- join the university hospitals for a workshop on translational research
- engage in a very interactive seminar on biometry
- enjoy an entire day improving your communication and presentation skills
- practice scientific writing in an interactive seminar
- practice proper referencing in a RefWorks workshop
• discuss your Master's thesis topics, potential local and home supervisors, the timeline and the feasibility

**Literature**
All required literature will be indicated by the lecturers.

**Teaching and learning methods**
This is a compulsory course.

After the Module 2 examination, we will engage in interactive seminars and workshops. We will practice on computers, in laboratories, in real life and in front of a camera. The latter is part of the workshop on communication and presentation skills and takes place in a confidential environment.

**Workload**
We calculate the workload during and after the seminar to be 30 hours (1 ECTS).

**Assessment**
The grade of the module will be the grade of the written exam. Prerequisite for exam registration is passing the pre-courses.

**Grading procedure**
The grade of the module will be the grade of the exam.

**Basis for**
All teaching and learning during this seminar is dedicated to the improvement of your skills in assessing published research and presenting yourself or certain hypotheses. This is the basis for all subsequent modules as well as the Master's thesis (key skills, methodological competencies, subject-overarching competencies).

Naturally, we expect you to employ the acquired skills also in your professional life and during discussions with peers, superiors and other healthcare professionals.
Clinical Research - Module 3
Modules referring to Modules 2 to 4

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<td>Duration</td>
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<td>Cycle</td>
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<td>Coordinator</td>
<td>Prof. Dr. Dietrich Rothenbacher</td>
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<tr>
<td>Instructor(s)</td>
<td>Klaus Berghaus, Manuela Bergmann, Frank Fleischer, Jens Fluck, Beate Henrikus, Esther Herpel, Benjamin Mayer, Bill Miller, Rainer Muche, Gerd Munzert, Gabriele Nagel, Inessa Polyakova, Claire Proudfoot, Christina Ring, Dietrich Rothenbacher, Antonio Saha, Richard Schlenk, Uta Schmidt-Straßburger, Lenka Taylor, Helmut Vigenschow, Daniela Weber, Anke Witting</td>
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Allocation of study programmes
This is an essential module of the MSc Advanced Oncology study program.

Recommended prerequisites
You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

Learning objectives
This module aims to improve your

- working knowledge in biomedical statistics and your ability to apply it to questions from your own work
- knowledge and ability to design, conduct and close clinical trials according to European regulations
- ability to identify and address ethical aspects linked to the administration of known and novel treatments according to European regulations and the Declaration of Helsinki
- ability to identify and address ethical aspects linked to good scientific practice
- knowledge of health economic evaluations as well as on project management in the context of clinical trials
- communication and presentation skills as well as your scientific writing

Syllabus
This module is divided into four courses, which are being described in more detail on the subsequent pages.
• The first course of this module covers aspects of Biometry relevant for oncolgists. It will reinforce previously acquired knowledge in the context of cancer care and enable you to conduct analyses on your own.

• The course on Ethical Aspects clinical and basic research will reinforce previously acquired knowledge and introduce European legislation concerning clinical trials to you.

• The course on Clinical Trials will introduce, reinforce and update previously acquired knowledge on the design, conduct and technical and scientific closure of trials in the field of oncology according to the most recent European regulations.

• The fourth course of this module will cover Project Management in the context of the conduct of clinical trials as well as health economic evaluations.

At the end of the module, you will repeat biometry during the seminar, sit your examination and engage in communication and presentation training as well as training in scientific writing and referencing. You will have the opportunity to network with the older class and with Ulm University-based thesis supervisors.

**Literature**

This module is divided into four courses. Each course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and the secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators.

**Teaching and learning methods**

Module 3 on Clinical Research contains interactive e-lectures, literature, self-assessments and forums for an optimized learning environment. At the end of this module, you must participate in person in a multiple choice quiz (Module examination).

**Workload**

We estimate that the successful completion of this module requires 300 hours of work (10 ECTS).

**Assessment**

Test

**Grading procedure**

Test

**Basis for**

Understanding the content of this module should enable you to understand all the facets of the subsequent modules on Advanced/Integrated Therapies and Management (subject-specific and subject-overarching competencies). The module contents should enable you to discuss the taught concepts in your Master's thesis and your professional life in a meaningful and scientifically sound manner (methodological competencies, key skills).

Upon passing the module examination, you will be certified to have acquired Good Clinical Practice (GCP) (key skills). This means you are capable to work in a clinical research environment and comply with existing regulations.
Biometry
Modules referring to Clinical Research - Module 3

Code 8830771243

ECTS credits 2

Attendance time 5

Language of instruction English

Duration 1 Semester

Cycle each Summer Semester

Coordinator Prof. Dr. Dietrich Rothenbacher, Prof. Dr. Rainer Muche

Instructor(s) Dr. Frank Fleischer, PD Dr. Benjamin Mayer, Prof. Dr. Rainer Muche, Dr. Christina Ring

Allocation of study programmes This course is part of Module 3 on Clinical Research of the non-consecutive MSc Advanced Oncology study program.

Recommended prerequisites You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University

Learning objectives By completing this course, you should know about and be aware of:

• common statistical methods used in clinical trials
• the key steps in statistical planning, conducting and analyzing of clinical trials
• the distinction between different study types
• different methods of descriptive statistics
• different graphical methods and their proper use
• different statistical tests
• the principles of linear regression
• the analysis of dichotomous outcomes
• different aspects of survival analyses
• sample size estimation
• how to implement data
• the different steps and methods of biometrical reporting

You should be able to:

• apply statistical methods yourselves
• plan, conduct and analyze a clinical trial together with statisticians, peers and supervisors
• apply different methods of descriptive statistics appropriately
• use different graphical methods meaningfully
• apply different statistical tests appropriately
• interpret linear regression models
• explain the analysis of dichotomous outcomes
• interpret different aspects of survival analyses meaningfully
• perform simple sample size estimations based on online tools
• report the different steps and methods applied

by applying the knowledge and skills you have gained from this course.

Syllabus
This course offers you interactive online lectures and primary literature accompanied by self-assessments during and after the lectures on the following topics:

• Introduction to Biometry and Study Types
• Design of Experiments
• Descriptive Statistics
• Graphical Methods
• Diagnostic Tests
• Statistical Tests
• Linear Regression
• Dichotomous Outcome
• Survival Analysis
• Sample Size Estimation
• Steps in Analysing and Reporting
• Designing Clinical Trials in Oncology

We have included an SPSS Introduction. This is a specially tailored do-it-yourself tutorial for better adherence to the course contents. You can download SPSS via vpn from the kiz. You should install it and follow the tutorial in order to be able to reproduce the different steps as well as performing your own data analysis.

You are invited to use the interactive forums anytime to contact the respective lecturers in the case of questions concerning the lectures or their implications and the application of the lecture contents to your statistical problems.

Literature
This course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators.

In order to maximize your learning experience, we strongly advise you to download SPSS via the vpn network of Ulm University from the software homepage.

Teaching and learning methods
This compulsory course is part of Module 3 on Clinical Research. It contains e-lectures, lecture-tailored software tutorials, literature, self-assessments and forums for an optimized learning environment. After the personal introduction to your lecturers during the previous attendance seminar, you should be more at ease to contact them in case of any lecture-related question.

At the end of this course, you must participate in a mandatory pre-exam assignment, a multiple choice quiz that you can answer from your place of studies.
but which you should pass by answering at least 60% of the questions correctly. You may repeat this assessment as often as you need in order to pass according to the Subject-specific Study regulations.

**Workload**

We calculate that the successful completion of this course requires 60 hours of work (2 ECTS).

**Assessment**

The award of the credit points in the ungraded module is based on a written exam.

**Grading procedure**

The module is not graded.

**Basis for**

This course should enable you to understand the statistical foundation of clinical trials and the statistical impact of their possible results (methodological and subject-overarching competencies, key skills). As such, this course is the basis for the module on Advanced/Integrated Therapies as well as your own Master's thesis.

This course should enable you to understand and apply the fundamentals of biostatistics in order to discuss ideas, trials and results meaningfully with statisticians, peers and patients meaningfully and in a scientifically sound manner (key skills).
Clinical Trials - Advanced Oncology
Modules referring to Clinical Research - Module 3

Code 8830771241

ECTS credits 2

Attendance time 5

Language of instruction English

Duration 1 Semester

Cycle each Summer Semester

Coordinator Prof. Dr. Dietrich Rothenbacher, Dr. Frank Stegelmann

Instructor(s) Dr. Manuela Bergmann, Dr. Esther Herpel, Prof. Bill Miller, Prof. Dr. Gerd Munzert, Dr. Inessa Polyakova, Prof. Dr. Richard Schlenk, Dr. Lenka Taylor, Daniela Weber, Dr. Anke Witting

Allocation of study programmes This course is part of Module 3 on Clinical Research of the non-consecutive MSc Advanced Oncology study program.

Recommended prerequisites You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

Learning objectives After completing this course, we expect you to be aware of and to know about:

- the organizational structure of a study office and a CRO
- the steps from the idea of a protocol to the publication of the results
- legal, ethical and administrative standards of a trial
- qualitative standards of a protocol
- qualitative standards of data management
- qualitative standards of patients' management
- qualitative standards of safety aspects
- the basics of scientific writing

You should be able to

- set up a trial office at your home institution by observing all regulatory framework
- develop a study protocol yourself with feedback from supervisors, statisticians and peers
- perform clinical trials according to the guidelines on Good Clinical Practice (GCP)
- write scientific communications
• register your trial in the appropriate database

**Syllabus**

This course offers you interactive online lectures and primary literature accompanied by exercises and self-assessments during and after the lectures on the following subjects:

- Evidence based medicine
- Protocol development: from idea to protocol
- Protocol development - writing a protocol
- Trial registration
- Scientific writing
- Data management
- Trial Master File and Investigator Site File
- Study initiation and activation
- Investigational medical product management
- Biobanking
- Quality assurance
- Safety surveillance
- End of trial
- Assessment of study results and publication
- Transfer of study results into clinical practice
- Drug development

You are welcome to use the interactive forums to contact the respective lecturers in the case of questions concerning the lectures or the implications of the lectures.

We strongly encourage you to submit the figure caption exercise of the scientific writing unit directly by e-mail to the lecturer.

**Literature**

This course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and the secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators.

In addition, we recommend the purchase of a book on scientific writing in the (bio)medical sciences.

**Teaching and learning methods**

This compulsory course is part of Module 3 on Clinical Research. It contains interactive e-lectures, literature, self-assessments and forums for an optimized learning environment.

In addition, this course provides direct tutorial support in scientific writing, a core competence of a scientist. You are invited to submit a figure caption exercise to the tutor.

At the end of this course, you must submit an outline of your planned thesis project as a mandatory pre-exam assignment to the scientific director. You will be guided through the scientific writing process with as many feedback sessions as necessary in order to finish with an outline that meets both, good scientific practice and GCP standards.
<table>
<thead>
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<th><strong>Workload</strong></th>
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</tr>
<tr>
<td><strong>Basis for</strong></td>
<td>This course should enable you to observe all measures of Good Scientific Practice and to write a scientific essay (<strong>key skills</strong>). It is hence the basis for the Modules on Advanced/Integrated Therapies and Management as well as your Master’s thesis.</td>
</tr>
<tr>
<td></td>
<td>The course contents should enable you to act competently within a clinical research team at all levels and to provide a GCP environment in your home institution (<strong>methodological and subject-overarching competencies, key skills</strong>).</td>
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## Ethical Aspects

Modules referring to Clinical Research - Module 3

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<tr>
<td>Coordinator</td>
<td>Prof. Dr. Dietrich Rothenbacher, Dr. Frank Stegelmann</td>
</tr>
<tr>
<td>Instructor(s)</td>
<td>Dr. Beate Henrikus, Dr. Inessa Polyakova, Prof. Dr. Richard Schlenk, Prof. Dr. Dietrich Rothenbacher</td>
</tr>
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</table>

### Allocation of study programmes
This course is part of Module 3 on Clinical Research of the non-consecutive MSc Advanced Oncology study program.

### Recommended prerequisites
You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

### Learning objectives
After completing this course, we expect you to be aware of and to know about:

- the legal basis for clinical trials in Europe
- the fundamental ethical principles in clinical research involving human subjects, including their development and the documents that articulate them
- the importance of informed consent and its essential contents
- the most important guidelines on clinical research
- the perspective of the Ethics Research Committee on clinical research
- the legal bases of participant insurance, liability insurance of hospitals and drug manufacturers in the EU
- the different working conditions in the various environments of potential collaboration partners
- potential issues of conflict of interest
- good clinical practice (GCP)
- scientific misconduct and fraud
- the consequences of misconduct and fraud

You should be able to...
• observe the fundamental ethical principles in clinical research involving human subjects
• observe Good Clinical Practice (GCP) and thereby providing for your patients
• detect and prevent scientific misconduct and fraud

by applying the knowledge and the skills you have gained from this course.

Syllabus
This course offers you interactive online lectures and primary literature accompanied by exercises and self-assessments during and after the lectures on the following subjects:

• Application for clinical trials in Europe
• The application process from the ERC's View
• Informed consent
• Participants insurance
• Ethical principles for collaboration
• Prevent and detect scientific misconduct and fraud

You are invited to use the interactive forums to contact the respective lecturers in the case of questions concerning the lectures or the implications of the lectures.

Literature
This course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and the secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators.

Teaching and learning methods
This compulsory course is part of Module 3 on Clinical Research. It contains interactive e-lectures, literature, self-assessments and forums for an optimized learning environment.

At the end of this course, you must participate in a mandatory pre-exam assignment, a multiple choice quiz that you can answer from your place of studies but which you should pass by answering at least 60% of the questions correctly. You may repeat this assessment as often as you need in order to pass according to the Subject-specific Study Regulations.

Workload
We calculate that the successful completion of this course requires 30 hours of work (1 ECTS).

Assessment
The award of the credit points in the ungraded module is based on a written exam.

Grading procedure
The module is not graded.
This course should enable you to observe all measures of Good Clinical Practice and Good Scientific Practice (key skills). It is hence the basis for the Modules on Advanced/Integrated Therapies and Management as well as your Master's thesis. The course contents should enable you to act competently within a clinical research team at all levels and to provide a GCP environment in your home institution thereby providing the best and safest care for your patients (key skills, methodological and subject-overarching competencies).
## Project Management - Clinical Research

### Modules referring to Clinical Research - Module 3

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<td>Cycle</td>
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<td>Coordinator</td>
<td>Prof. Dr. Dietrich Rothenbacher</td>
</tr>
<tr>
<td>Instructor(s)</td>
<td>Dr. Klaus Berghaus, Jens Fluck, Prof. Dr. Gabriele Nagel, Dr. Claire Proudfoot, Dr. Antonio Saha, Prof. Dr. Dietrich Rothenbacher, Dr. Helmut Vigenschow</td>
</tr>
</tbody>
</table>

### Allocation of study programmes

This course is part of Module 3 on Clinical Research of the non-consecutive MSc Advanced Oncology study program.

### Recommended prerequisites

You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

### Learning objectives

After completing this course, we expect you to be aware of and to know about:

- the building blocks of good project management, i.e. team building, budget management, project governance
- the benefits, methodology and characteristics of high quality medical registries
- the fundamental elements of GMP (Good Manufacturing Practices) and its application to research phase and routine production
- the role of observational studies and post-approval issues of drug safety
- systematic reviews and meta-analyses and how they are important tools to investigate and summarize the body of evidence existent ot a specific medical research question
- key concepts in health economics and the current use of health economics within health care systems

You should be able to:

- conduct project management and identify all factors critical to the success of your project
- appreciate the quality of registries
- define critical points in Good Manufacturing Practice (GMP)
- appreciate the value of observational studies
• follow the PRISMA guidelines in order to write your own systematic review
• appreciate health economic evaluations and their impact on cancer drug
distribution in different countries

by applying the knowledge you have gained from this course.

Syllabus

This course offers you interactive online lectures and primary literature
accompanied by exercises and self-assessments during and after the lectures on
the following subjects:

• Project Management
• Case Studies
• Planning and Managing a Registry: Case Study
• GMP during Pharmaceutical Development and Manufacturing
• Post-Approval Safety Management
• Systematic Reviews and Meta-Analysis
• Introduction to Health Economics

You are welcome to use the interactive forums to contact the respective lecturers
in the case of questions concerning the lectures or the implications of the lectures.
We strongly encourage you to develop your own notes during the very interactive
lectures on project management and to use them for the assessment of the
different challenges presented in the case studies.

Literature

This course is divided into learning units according to the different subjects.
Each learning unit has its own page on the learning platform. On each page
of the learning platform you will find links to the primary and the secondary
literature as well as other recommended readings. By following the links, you
can easily retrieve the original literature using your kiz account and the academic
environment of a university. Selected references are available upon request by
direct e-mail to the study program coordinators.

Teaching and
learning methods

This compulsory course is part of Module 3 on Clinical Research. It contains very
interactive e-lectures, literature, self-assessments and forums for an optimized
learning environment.

At the end of this course, you must participate in a mandatory pre-exam
assignment, a multiple choice quiz that you can answer from your place of studies
but which you should pass by answering at least 60% of the questions correctly.
You may repeat this assessment as often as you need in order to pass according
to the Subject-specific Study Regulations.

Workload

We calculate that the successful completion of this course requires 60 hours of
work (2 ECTS).

Assessment

The award of the credit points in the ungraded module is based on a written exam.

Grading procedure

The module is not graded.
**Basis for**

This course should enable you to manage projects consciously *(key skills)* and to follow the guidelines on systematic reviews. It is the basis for the Modules on Advanced/Integrated Therapies and Management as well as your Master's thesis. The course contents should enable you to act competently within a project team at all levels, to contribute to post-approval safety management of cancer drugs and to act responsibly within your economic system *(key skills, methodological and subject-overarching competencies)*.
### Clinical Research: On-Site
Modules referring to Clinical Research - Module 3

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<tr>
<td>Coordinator</td>
<td>Prof. Dr. Dietrich Rothenbacher</td>
</tr>
<tr>
<td>Instructor(s)</td>
<td>Dr. Klaus Berghaus, PD Dr. Benjamin Mayer, Prof. Dr. Rainer Muche, Prof. Dr. Dietrich Rothenbacher, Dr. Uta Schmidt-Straßburger, Communication and Presentation Coaches, Personal Coach</td>
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</tbody>
</table>

**Allocation of study programmes**
This seminar is part of Module 3 on Clinical Research of the MSc Advanced Oncology study program.

**Recommended prerequisites**
You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

**Learning objectives**
After this seminar, you will have
- **transferred** your biometry knowledge toward the knowledgeable assessment of your own and other’s biostatistical data
- **learned** and observed about quality control in a pharmaceutical production plant
- **improved** your communication and presentation skills
- **improved** your scientific writing skills
- **improved** scientific discussions skills
- **improved** your goal orientation

**Syllabus**
During this seminar, you will
- repeat biometry and fortify your skills therein
- sit your module 3 examination
- visit a biosimilar production plant of a large local pharmaceutical manufacturer
• actively improve your presentation and communication skills further during one day of training
• improve your scientific writing skills further
• network with the elder cohort of the study program
• actively engage in Master thesis discussions of the elder cohort
• have the possibility to engage in personal coaching

Literature
All required literature will be indicated by the lecturers.

Teaching and learning methods
This is a compulsory course. Before the Module 3 examination, we will offer a revision course in biometry. After the examination, you will visit a production plant of a biosimilars’ manufacturer. Of course, we will engage again in interactive seminars and workshops. We will practice on computers, on paper, in real life and in front of a camera again. The latter is part of the workshop on communication and presentation skills and takes place in a confidential environment.

Workload
We calculate the workload during and after the seminar to be 30 hours (1 ECTS).

Assessment
The grade of the module will be the grade of the written exam. Prerequisite for exam registration is passing the pre-courses.

Grading procedure
The grade of the module will be the grade of the exam.

Basis for
All teaching and learning during this seminar is dedicated to the improvement of your skills in assessing published research, writing scientific papers yourself and presenting yourself or certain hypotheses (key skills). This is the basis for all subsequent modules as well as the Master's thesis (subject-overarching and methodological competencies). Naturally, we expect you to employ the acquired skills also in your professional life and during discussions with peers, superiors and other healthcare professionals (key skills).
Advanced/Integrated Therapies - Module 4
Modules referring to Modules 2 to 4

Code 8830771674

ECTS credits 11

Attendance time 23

Language of instruction English

Duration 1 Semester

Cycle each Winter Semester

Coordinator Prof. Dr. Stephan Stilgenbauer


Allocation of study programmes This module on Advanced and Integrated Therapies is an essential part of the non-consecutive MSc Advanced Oncology study program.

Recommended prerequisites You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

Learning objectives This module aims to improve your knowledge about the epidemiology, pathology and molecular pathogenesis, prognostic and predictive factors, diagnosis and staging, screening, prevention, management by disease stage, surveillance, survivorship and quality of life of the different tumor entities and reflect the current
state-of-the-art procedures as indicated by current international guidelines. You should be aware of and know how to support patients and their families by means of palliative care, preventing treatment side effects and display good interpersonal skills, while respecting the patients’ wishes and the ethical framework of action.

You should be able to diagnose the discussed tumors, advise patients on their prognoses, choose adequate treatment and secondary prevention options together with the patients and their families, discuss them in a multidisciplinary tumor board, suggest the appropriate guideline-oriented surveillance and provide best supportive care by applying the knowledge you have gained from this module.

You should be able to reflect and improve your actions in terms of best supportive care and proper professional conduct by considering the patients’ needs in conjunction with the current treatment guidelines. You should also be aware of possible psychological risks of your professional activity and know how to take self-preservation measures.

**Syllabus**

This module is divided into three courses, which are being described in more detail on the subsequent pages.

- The course **Clinical Oncology I** will update your knowledge on the adequate, guideline-oriented treatment of patients with gynecological, genitourinary and gastrointestinal cancers.
- The course **Clinical Oncology II** will update your knowledge on the adequate, guideline-oriented treatment of patients with thoracic, head and neck, and thymic cancers as well as sarcomas, melanoma, neurological neoplasms, cancer of unknown primary, pediatric oncology, AIDS-related malignancies and hematological malignancies.
- The course **Integrated therapeutic concepts** will update your knowledge on palliative care, pain management, solution finding for ethical dilemmas and psychooncology.

At the end of this module, you will sit your examination and participate in the ESO-ESMO masterclass with interactive classes of difficult communication scenarios (with actors), solution finding for ethical dilemmas and thesis preparation discussions.

**Literature**

This module is divided into three courses. Each course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and the secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators.

**Teaching and learning methods**

Module 4 on Advanced/Integrated Therapies contains interactive e-lectures, literature, self-assessments and forums for an optimized learning environment. At the end of this module, you must participate in person in a multiple choice quiz (Module examination).

**Workload**

We estimate that the successful completion of this module requires 330 hours of work (11 ECTS).
The proper acquisition of this module's contents should enable you to act responsibly in the treatment of tumor patients and in qualified interactions with them, their families, and peers (key skills, subject-specific competency). You should know the integrated therapeutic options to achieve the best possible quality of life for your patients (methodological and subject-overarching competencies).

All teaching and learning during this module is dedicated to the improvement of your skills in clinical practice (key skills, methodological and subject-overarching competencies). This is the basis for the subsequent module as well as the Master's thesis. We expect you to employ the acquired skills in your professional life and during discussions with peers, superiors and other healthcare professionals (key skills).
**Clinical Oncology I**  
Modules referring to Advanced/Integrated Therapies - Module 4

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<tr>
<td>Coordinator</td>
<td>Prof. Dr. Stephan Stilgenbauer</td>
</tr>
<tr>
<td>Instructor(s)</td>
<td>Dr. Omar Abdel-Rahman, Prof. Dr. Rudolf Arnold, Dr. Inga Bekes, Dr. Nikolaus de Gregorio, Dr. Florian Ebner, Dr. Thomas Ettrich, Dr. Visnja Fink, Prof. Dr. Michael Geißler, Dr. Robert Hefty, Prof. Dr. Jens Huober, Prof. Dr. Wolfgang Janni, Dr. Axel John, PD Dr. Stephan Kersting, Dr. Miriam Kull, Prof. Dr. Florian Lordick, PD Dr. Dominik Modest, Dr. Olivia Pagani, Dr. Jessica Salmen, Prof. Dr. Christoph Scholz, PD Dr. Lukas Schwentner, PD Dr. Silke Schüle, Prof. Dr. Thomas Seufferlein, Dr. Sven Walter, Dr. Felix Wezel, Prof. Dr. Götz von Wichert, Dr. Peter Widschwendter, Prof. Dr. Thomas Wiegel, Dr. Friedemann Zengerling</td>
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### Allocation of study programmes
This course is part of Module 4 on Advanced/Integrated Therapies of the nonconsecutive MSc Advanced Oncology study program.

### Recommended prerequisites
You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

### Learning objectives
You should be aware of and know about:

- Epidemiology
- Pathology and molecular pathogenesis
- Prognostic and predictive factors
- Diagnosis and Staging
- Screening
- Prevention
- Management by disease stage
- Surveillance
- Survivorship and quality of life

of the different tumor entities and reflect the current state-of-the-art procedures as indicated by current international guidelines.
You should be able to diagnose these tumors, advise patients on their prognoses, choose adequate treatment and secondary prevention options together with the patients and their families, discuss them in a multidisciplinary tumor board, suggest guideline-oriented surveillance and provide best supportive care by applying the knowledge you have gained from this course.

**Syllabus**

This course offers you interactive online lectures and primary literature accompanied by self-assessments and case-based discussions during and after the lectures on the following topics:

- Breast cancer
- Ovarian cancer
- Cervical cancer
- Endometrial and trophoblastic cancer
- Vulvar and vaginal cancer
- Urothelial cancer
- Prostate cancer
- Germ cell tumors
- Renal cell cancer
- Colorectal cancer
- Gastric cancer
- Esophageal cancer
- Gallbladder cancer and biliary tree cancer
- Hepatocellular cancer
- Pancreatic cancer
- Neuroendocrine tumors

You are invited to use the interactive forums to contact the respective lecturers in the case of questions concerning the lectures or the implications of the lectures.

**Literature**

This course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and the secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators.

**Teaching and learning methods**

This compulsory course is part of Module 4 on Advanced/Integrated Therapies. It contains interactive e-lectures, literature, self-assessments and forums for an optimized learning environment.

At the end of this course, you must participate in a mandatory pre-exam assignment, a multiple choice quiz that you can answer from your place of studies but which you should pass by answering at least 60% of the questions correctly. You may repeat this assessment as often as you need in order to pass according to the Subject-specific Study Regulations.

**Workload**

We calculate that the successful completion of this course requires 90 hours of work (3 ECTS).

**Assessment**

The award of the credit points in the ungraded module is based on a written exam.
### Grading procedure
The module is not graded.

### Basis for
This course should enable you to act responsibly in the treatment of tumor patients and in developing new clinical trials for further improvement of current treatment options (key skills, subject-specific competencies). For the preparation of your Master's thesis, you should know about all the current diagnostic, treatment and follow-up options of the entity you are working on as outlined in this course (methodological and subject-overarching competencies).

The course contents should enable you to apply the taught concepts in your Master's thesis and your professional life in a meaningful and scientifically sound manner (key skills).
# Clinical Oncology II

**Modules referring to Advanced/Integrated Therapies - Module 4**

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<td>Attendance time</td>
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<td>Language of instruction</td>
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<td>Duration</td>
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<td>Cycle</td>
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</tr>
<tr>
<td>Coordinator</td>
<td>Prof. Dr. Stephan Stilgenbauer</td>
</tr>
</tbody>
</table>

**Instructor(s)**

Dr. Manuela Bergmann, PD Dr. Dirk Bottke, Prof. Dr. Christian Buske, Prof. Dr. Hartmut Döhner, Prof. Dr. Konstanze Döhner, PD Dr. Thomas Duell, Prof. Dr. Andreas Engert, Prof. Dr. Stefan Fröhling, PD Dr. Aristoteles Giagounidis, PD Dr. Jens Greve, Dr. Georg Härter, Dr. Andreas Hillenbrand, Prof. Dr. Thomas Hoffmann, Prof. Dr. Margit Huber, Dr. Elie Kassouf, Prof. Dr. Alwin Krämer, Dr. Thomas Krohn, Dr. Simon Laban, PD Dr. Christian Langer, PD Dr. Lars Lindner, Prof. Dr. Markus Luster, PD Dr. Lüder-Hinrich Meyer, Dr. Regine Mayer-Steinacker, Prof. Dr. Gerd Munzert, Prof. Dr. Rudolf Reiter, Prof. Dr. Uwe Schlegel, Prof. Dr. Hubert Schelzig, Prof. Dr. Michael Schmeißer, PD Dr. Lars-Alexander Schneider, Prof. Dr. Patrick Schuler, Prof. Dr. Markus Schultheiß, Prof. Dr. Rolf Stahel, Dr. Frank Stegelmann, Prof. Dr. Stephan Stilgenbauer, Dr. Gevorg Tamamayan, Dr. Johannes Veit, PD Dr. Andreas Viardot, Dr. Nikolaos Zarpis

**Allocation of study programmes**

This course is an essential part of Module 4 on Advanced/Integrated Therapies of the nonconsecutive MSc Advanced Oncology study program.

**Recommended prerequisites**

You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

**Learning objectives**

You should be aware of and know about:

- Epidemiology
- Pathology and molecular pathogenesis
- Prognostic and predictive factors
- Diagnosis and Staging
- Screening
- Prevention
- Management by disease stage
- Surveillance
- Survivorship and quality of life
of the different tumor entities and reflect the current state-of-the-art procedures as indicated by current international guidelines.

You should be able to diagnose these tumors, advise patients on their prognoses, choose adequate treatment and secondary prevention options together with the patients and their families, discuss them in a multidisciplinary tumor board, suggest guideline-oriented surveillance and provide best supportive care by applying the knowledge you have gained from this course.

**Syllabus**

This course offers you interactive online lectures and primary literature accompanied by self-assessments and case-based discussions during and after the lectures on the following topics:

- Lung cancers
- Mesothelioma
- Head and neck cancers
- Thyroid cancer
- Soft tissue sarcomas
- Bone sarcomas
- Melanoma
- Neuro-Oncology
- AIDS related malignancies
- Cancer of Unknown Primary (CUP)
- Acute Leukemia and Myelodysplasia (AML, ALL, MDS)
- Chronic Leukemias (CML, CLL)
- Hodgkin's Lymphoma
- Non-Hodgkin's Lymphoma
- Multiple Myeloma and plasma cell dyscrasias
- Pediatric oncology

You are invited to use the interactive forums to contact the respective lecturers in the case of questions concerning the lectures or the implications of the lectures.

**Literature**

This course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and the secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators.

**Teaching and learning methods**

This compulsory course is part of Module 4 on Advanced/Integrated Therapies. It contains interactive e-lectures, literature, self-assessments and forums for an optimized learning environment.

At the end of this course, you must participate in a mandatory pre-exam assignment, a multiple choice quiz that you can answer from your place of studies but which you should pass by answering at least 60% of the questions correctly. You may repeat this assessment as often as you need in order to pass according to the Subject-specific Study Regulations.

**Workload**

We calculate that the successful completion of this course requires 90 hours of work (3 ECTS).
<table>
<thead>
<tr>
<th><strong>Assessment</strong></th>
<th>The award of the credit points in the ungraded module is based on a written exam.</th>
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</thead>
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<tr>
<td><strong>Grading procedure</strong></td>
<td>The module is not graded.</td>
</tr>
<tr>
<td><strong>Basis for</strong></td>
<td>This course should enable you to act responsibly in the treatment of tumor patients and in developing new clinical trials for further improvement of current treatment options (key skills, subject-specific competencies). For the preparation of your Master's thesis, you should know about all the current diagnostic, treatment and follow-up options of the entity you are working on as outlined in this course (methodological and subject-overarching competencies). The course contents should enable you to apply the taught concepts in your Master's thesis and your professional life in a meaningful and scientifically sound manner (key skills).</td>
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Integrated Therapeutic Concepts
Modules referring to Advanced/Integrated Therapies - Module 4

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<td>Language of instruction</td>
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<td>Duration</td>
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<td>Cycle</td>
<td>each Winter Semester</td>
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<tr>
<td>Coordinator</td>
<td>Prof. Dr. Stephan Stilgenbauer</td>
</tr>
<tr>
<td>Instructor(s)</td>
<td>Dr. Matti Aapro, Dr. Anna Babiak, Prof. Dr. Gustav Dobos, Dr. Verena Gaidzik, Prof. Dr. Katharina Hancke, Dr. Klaus Hö nig, Dr. Hannes Hofbauer, Prof. Dr. Stefan Lorenzl, Dr. Regine Mayer-Steinacker, Dipl.-Psych. Varinia Popek, Prof. Dr. Hanno Riess, Dr. Anne-Derke Rose, Dr. Stefan Schö nsteiner, Dr. Maximilian Schochow, Dipl-Psych. Jane-Anne Spiekermann, PD Dr. Peter Steffen, Prof. Dr. Florian Steger</td>
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</table>

Allocation of study programmes
This course is an essential part of Module 4 on Advanced/Integrated Therapies of the nonconsecutive MSc Advanced Oncology study program.

Recommended prerequisites
You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

Learning objectives
You should be aware of and know how to support patients and their families by means of palliative care, preventing treatment side effects and how to display good interpersonal skills, while respecting the patients' wishes and the ethical framework of action.

You should be able to reflect and improve your actions in terms of best supportive care and proper professional conduct by considering the patients' needs in conjunction with the current treatment guidelines. You should also be aware of possible psychological risks of your professional activity and know how to take self-preservation measures.
Syllabus
This course offers you interactive online lectures and primary literature accompanied by self-assessments and case-based discussions during and after the lectures on the following topics:

• Palliative care
• Complementary therapies
• Management of treatment complications including preservation of fertility
• Ethics
• Psychooncology
• Communication, counselling

You are invited to use the interactive forums to contact the respective lecturers in the case of questions concerning the lectures or the implications of the lectures.

Literature
This course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and the secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators.

Teaching and learning methods
This compulsory course is part of Module 4 on Advanced/Integrated Therapies. It contains interactive e-lectures, case-based scenarios from real life, literature, self-assessments and forums for an optimized learning environment.

At the end of this course, you must participate in a mandatory pre-exam assignment, a multiple choice quiz that you can answer from your place of studies but which you should pass by answering at least 60% of the questions correctly. You may repeat this assessment as often as you need in order to pass according to the Subject-specific Study Regulations.

Workload
We calculate that the successful completion of this course requires 60 hours of work (2 ECTS).

Assessment
The award of the credit points in the ungraded module is based on a written exam.

Grading procedure
The module is not graded.

Basis for
The proper acquisition of this course's contents should enable you to act responsibly in the treatment of tumor patients and in qualified interactions with them, their families, and peers (key skills, subject-specific competency).
For the preparation of your Master's thesis, you should know the integrated therapeutic options to achieve the best possible quality of life for your patients (methodological and subject-overarching competencies).
The course contents should enable you to apply the taught concepts in your Master's thesis and your professional life in a meaningful and scientifically sound manner (key skills).
Advanced/Integrated Therapies: On-Site
Modules referring to Advanced/Integrated Therapies - Module 4

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<td>Duration</td>
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<tr>
<td>Cycle</td>
<td>each Winter Semester</td>
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<tr>
<td>Coordinator</td>
<td>Prof. Dr. Stephan Stilgenbauer</td>
</tr>
<tr>
<td>Instructor(s)</td>
<td>Prof. Dr. Stephan Stilgenbauer, Dr. Uta Schmidt-Straßburger, international ESO-ESMO masterclass lecturers and instructors</td>
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</table>

Allocation of study programmes
This seminar is an essential part of Module 4 on Advanced/Integrated Therapies of the nonconsecutive MSc Advanced Oncology study program.

Recommended prerequisites
You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

Learning objectives
After this seminar, you will have
- transferred module 4 knowledge to clinical situations during many case discussions
- gotten an update on most recent updates in clinical oncology of solid tumors by top-ranking European oncologists
- improved your interpersonal and problem-solving skills by lecturer-guided practical sessions
- learned about clinical ethical decision making
- made progress towards your Master's thesis

Syllabus
During this seminar, you will
- sit your module 4 examination, a multiple choice quiz
- give oral and electronic feedback on module 4
- communicate in difficult clinical scenarios (with actors)
- practice clinical ethics decision making in group seminars
- obtain a comprehensive update on most recent developments in solid tumors treatment
- be a participant of the ESO-ESMO-Masterclass in Clinical Oncology
- discuss the progress of your Master’s thesis with your scientific director

<table>
<thead>
<tr>
<th>Literature</th>
<th>All required literature will be indicated by the lecturers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching and learning methods</td>
<td>This is a compulsory course. After the Module 4 examination, we will engage in interactive seminars, case-based discussions and lectures. We will practice communication in difficult scenarios and ethical decision making in real life with actors and peers. This takes place in a confidential environment.</td>
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<tr>
<td>Workload</td>
<td>We calculate the workload during and after the seminar to be 30 hours (1 ECTS).</td>
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<tr>
<td>Assessment</td>
<td>The grade of the module will be the grade of the written exam. Prerequisite for exam registration is passing the pre-courses.</td>
</tr>
<tr>
<td>Grading procedure</td>
<td>The grade of the module will be the grade of the exam.</td>
</tr>
<tr>
<td>Basis for</td>
<td>All teaching and learning during this seminar is dedicated to the improvement of your skills in clinical practice (key skills, methodological and subject-overarching competencies). This is the basis for all subsequent modules as well as the Master's thesis. We expect you to employ the acquired skills in your professional life and during discussions with peers, superiors and other healthcare professionals (key skills).</td>
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Management - Module 5
Modules referring to Modules 2 to 4

Code 8830771675

ECTS credits 10

Attendance time 19

Language of instruction English

Duration 1 Semester

Cycle each Summer Semester

Coordinator Prof. Dr. Tobias M. Böckers

Instructor(s) Patriciu-Andrei Achimas-Cadariu, Alexander Alscher, Marie-Luise Dierks, Martin Dreyling, Sören Eichhorst, Adelheid-Susanne Esslinger, Afschin Gandjour, Dirk Jäger, Alexander Katalinic, Louis Kathan, Lee Koch, Wolf-Dieter Ludwig, Jörg Noetzel, Detlef Herbert Schmidt, Uta Schmidt-Strassburger, Jan Evert van Lente, Claus Wendt, Simone Wesselmann

Allocation of study programmes This module on Management is an essential part of the non-consecutive MSc Advanced Oncology study program.

Recommended prerequisites You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

Learning objectives This module aims to improve your

- knowledge of business administration in the context of health care and oncology and your ability to apply it in your workflow
- knowledge of the organization and cash flow in Health Care Systems and your ability to identify beneficiaries of different health care models
- knowledge and ability how to manage different entities with the aim of better health care outcomes
- knowledge and ability how to implement quality control within your own working environment
- communication and negotiation skills

Syllabus This module is divided into four courses, which are being described in more detail on the subsequent pages.
• The first course of this module deals with aspects of Business Administration in the context of health care. It will introduce you to or reinforce your knowledge on strategic planning, organizational theory, accounting and finance and human resource management.

• The second course of this module directs your attention to different Health care systems. It will introduce you to or reinforce your knowledge of cash flow, patient preferences in health care and the German statutory and private health care.

• The third course of this module will reinforce your knowledge on the Management of entities, e.g. cancer centers, hospitals, practices, guideline groups and, most importantly, patients.

• The fourth course of this module is dedicated to Quality control and how to implement it in your own working environment by managing challenges in patient care, optimizing leadership strategies, introducing and consolidating change.

At the end of this module, you will sit your module examination, engage in negotiation training and develop your personalized health policy.

### Literature

This module is divided into four courses. Each course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and the secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators.

### Teaching and learning methods

Module 5 on Management contains interactive e-lectures, literature, self-assessments and forums for an optimized learning environment. At the end of this module, you must participate in person in a multiple choice quiz (Module examination).

### Workload

We estimate that the successful completion of this module requires 300 hours of work (10 ECTS).

### Assessment

Test

### Grading procedure

Test

### Basis for

This module should enable you to understand basic managerial practice in the context of oncology, health care systems and the different frameworks in which they operate, how to optimize the performance of a healthcare system's different stakeholders, to understand leadership practice in the context of oncology (subject-specific, subject-overarching and methodological competencies).

You might apply some of the principles within the context of your Master's Thesis (key skills). Beyond the course of studies, this module should enable you to manage your area responsibly with regard to general managerial aspects, the management of human and financial resources and thereby empower you to implement changes for the greater good in the short and in the long term (methodological and subject-overarching competencies). It should also
empower you to implement changes for the common good in the short and in the long term (key skills).

All teaching and learning during the attendance seminar of this module is dedicated to the improvement of your communication and negotiation skills (key skills). This is also a basis for the Master's thesis preparation and presentation.

Naturally, we expect you to employ the acquired skills also in your professional life and during discussions with peers, superiors and other healthcare professionals.
## Business Administration for Advanced Oncology

Modules referring to Management - Module 5

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<td><strong>Cycle</strong></td>
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<tr>
<td><strong>Coordinator</strong></td>
<td>Prof. Dr. Tobias M. Böckers</td>
</tr>
<tr>
<td><strong>Instructor(s)</strong></td>
<td>Prof. Dr. Adelheid-Susanne Esslinger, Dr. Louis Kathan</td>
</tr>
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</table>

### Allocation of study programmes

This course is an essential part of Module 5 on Management of the non-consecutive MSc Advanced Oncology study program.

### Recommended prerequisites

You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

### Learning objectives

You should be aware and know about:

- the concept of management
- planning and strategic management
- how to read and generate financial statements from investments
- how organizations can be organized
- the basics of managing human resources

You should be able to:

- identify the appropriate management model of your current working environment and its strengths and weaknesses
- plan a management strategy for your immediate and long-term goals
- generate a basic financial statement and communicate with finance directors in a qualified manner
- identify the organizational structure of your organization and its human resources as well as their strengths and weaknesses

### Syllabus

This course offers you interactive online lectures and primary literature accompanied by case-based learning and self-assessments during and after the lectures on the following topics:
- Introduction to management
- Planning and strategic management
- Accounting, finance and investment
- Organizational theory
- Human resources management

You are invited to use the interactive forums anytime to contact the respective lecturers in the case of questions concerning the lectures or their implications.

<table>
<thead>
<tr>
<th>Literature</th>
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<tr>
<td>This course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators.</td>
</tr>
<tr>
<td>Some of the units contain Harvard Business Cases purchased for you. You should read and discuss them in the interactive forums.</td>
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</table>

<table>
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<tr>
<th>Teaching and learning methods</th>
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<tbody>
<tr>
<td>This compulsory course is part of Module 5 on Management.</td>
</tr>
<tr>
<td>It contains e-lectures, content-related business cases, literature, self-assessments and forums for an optimized learning environment.</td>
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<tr>
<td>At the end of this course, you must participate in a mandatory pre-exam assignment, a multiple choice quiz that you can answer from your place of studies but which you should pass by answering at least 60% of the questions correctly. You may repeat this assessment as often as you need in order to pass according to the Subject-specific Study regulations.</td>
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<td>The award of the credit points in the ungraded module is based on a written exam.</td>
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<table>
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<tr>
<th>Grading procedure</th>
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<td>The module is not graded.</td>
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<table>
<thead>
<tr>
<th>Basis for</th>
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</thead>
<tbody>
<tr>
<td>This course should enable you to understand basic managerial practice in the context of oncology (<strong>subject-specific, subject-overarching and methodological competencies</strong> ). You might apply some of the principles within the context of your Master's Thesis (<strong>key skills</strong> ).</td>
</tr>
<tr>
<td>Beyond the course of studies, this course should enable you to manage your area responsibly with regard to general managerial aspects, the management of human and financial resources (<strong>methodological and subject-overarching competencies</strong> ). It should also empower you to implement changes in the short and in the long term (<strong>key skills</strong> ).</td>
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Health Care System
Modules referring to Management - Module 5

Code 8830771237
ECTS credits 1
Attendance time 2.5
Language of instruction English
Duration 1 Semester
Cycle each Summer Semester
Coordinator Prof. Dr. Tobias Böckers
Instructor(s) Prof. Dr. Alexander Katalinic, Dr. Detlef Herbert Schmidt, Jan Evert van Lente, Prof. Dr. Claus Wendt

Allocation of study programmes
This course is an essential part of Module 5 on Management of the non-consecutive MSc Advanced Oncology study program.

Recommended prerequisites
You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

Learning objectives
You should be aware of and know how
• different health care systems are organized and handle reimbursements
• social health care and long-term care insurance secure health care provision in Germany
• cancer registries can contribute to health care improvement
• integrated care models are constructed

You should be able to
• identify the cash flow in your health care systems and to name its strengths and weaknesses
• explain social health care and long-term care insurance
• explain the benefit of cancer registries for health care improvement
• devise care models for the needs of your patients

by applying the knowledge you have gained from this course.
Syllabus
This course offers you interactive online lectures and primary literature accompanied by case-based learning and self-assessments during and after the lectures on the following topics:

- International health care systems
- Social health and long-term care insurance
- National cancer registries
- Integrated care models

You are invited to use the interactive forums anytime to contact the respective lecturers in the case of questions concerning the lectures or their implications.

Literature
This course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators.

Teaching and learning methods
This compulsory course is part of Module 5 on Management. It contains e-lectures, literature, self-assessments and forums for an optimized learning environment.

At the end of this course, you must participate in a mandatory pre-exam assignment, a multiple choice quiz that you can answer from your place of studies but which you should pass by answering at least 60% of the questions correctly. You may repeat this assessment as often as you need in order to pass according to the Subject-specific Study regulations.

Workload
We calculate that the successful completion of this course requires 30 hours of work (1 ECTS).

Assessment
The award of the credit points in the ungraded module is based on a written exam.

Grading procedure
The module is not graded.

Basis for
This course should enable you to understand health care systems and the different frameworks in which they operate (subject-specific competencies). You might apply some of the principles within the context of your Master's Thesis (methodological competencies). Beyond the course of studies, this course should also empower you to implement changes for the greater good in the short and in the long term (key skills, subject-overarching and methodological competencies).
## Management of Entities

*Modules referring to Management - Module 5*

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<tr>
<td>Coordinator</td>
<td>Prof. Dr. Tobias Böckers</td>
</tr>
<tr>
<td>Instructor(s)</td>
<td>Dr. Patriciu-Andrei Achimas-Cadariu, Dr. Alexander Alscher, Prof. Dr. Marie-Luise Dierks, Prof. Dr. Martin Dreyling, Dr. Sören Eichhorst, Prof. Dr. Dirk Jäger, Dr. Jörg Noetzel, Dr. Simone Wesselmann</td>
</tr>
</tbody>
</table>

### Allocation of study programmes

This course is an essential part of Module 5 on Management of the non-consecutive MSc Advanced Oncology study program.

### Recommended prerequisites

You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

### Learning objectives

You should be aware and know how to

- build high quality cancer centers based on national cancer plans
- manage practices and hospitals
- establish and maintain high quality care by developing treatment guidelines and certifying cancer centers

After successful completion of this course, we expect you to be able to

- appreciate national cancer plans and their impact on cancer care
- name strengths and weaknesses of different management approaches of practices and hospitals
- adhere to treatment guidelines easier and to foster the certification of cancer centers for better care

### Syllabus

This course offers you interactive online lectures and primary literature accompanied by case-based learning and self-assessments during and after the lectures on the following topics:
• Challenges in building up a cancer center
• Fighting cancer
• Practice management
• Hospital management/NPO
• Certification of cancer centers
• Patient management
• Development of interdisciplinary guidelines
• Clinical pathways and SOP

You are invited to use the interactive forums anytime to contact the respective lecturers in the case of questions concerning the lectures or their implications

**Literature**

This course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators.

**Teaching and learning methods**

This compulsory course is part of Module 5 on Management. It contains e-lectures, content-related business cases, literature, self-assessments and forums for an optimized learning environment.

At the end of this course, you must participate in a mandatory pre-exam assignment, a multiple choice quiz that you can answer from your place of studies but which you should pass by answering at least 60% of the questions correctly. You may repeat this assessment as often as you need in order to pass according to the Subject-specific Study regulations.

**Workload**

We calculate that the successful completion of this course requires 60 hours of work (2 ECTS).

**Assessment**

The award of the credit points in the ungraded module is based on a written exam.

**Grading procedure**

The module is not graded.

**Basis for**

This course should enable you focus on different stakeholders in oncology healthcare and how to optimize their performance (methodological and subject-overarching competencies). You might apply some of the principles within the context of your Master's Thesis (key skills). Beyond the course of studies, this course should enable you to manage your area responsibly with regard to general managerial aspects, the management of human and financial resources. It should also empower you to implement changes in the short and in the long term for the common good (key skills).
Management: On-Site
Modules referring to Management - Module 5

Code 8830771240

ECTS credits 3

Attendance time 1.5

Language of instruction English

Duration 1 Semester

Cycle each Summer Semester

Coordinator Prof. Dr. Tobias Böckers

Instructor(s) Prof. Dr. Tobias Böckers, Prof. Dr. Wolf-Dieter Ludwig, Dr. Uta Schmidt-Strassburger, Communication and Presentation Coach, Personal Coach

Allocation of study programmes This course is an essential part of Module 5 on Management of the non-consecutive MSc Advanced Oncology study program.

Recommended prerequisites You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University

Learning objectives During this seminar, we expect you to

• transfer your acquired module 5 knowledge to the clinical and economical reality
• improve your negotiation skills
• understand oncology drug-approval processes in Europe

Syllabus You will sit the Module 5 examination, a multiple choice quiz. Afterwards, you will share your oral and electronic feedback on the Module with the module responsible.

During this seminar, we will engage in an interactive seminar on pricing of oncology drugs with a leading European expert in the field on oncology. You will also reinforce your skills in communication and negotiation during oncology-related scenarios with your communication coaches during one day of interactive training in a confidential setting. Together with trainers from the industry, we will engage in an interactive case-based seminar on module 5 contents.

Also, you will be networking with the younger cohort, which is present at the Reisensburg castle at the same time as your cohort.
<table>
<thead>
<tr>
<th>Literature</th>
<th>All required literature will be indicated by the lecturers.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teaching and learning methods</strong></td>
<td>This is a compulsory course.</td>
</tr>
<tr>
<td></td>
<td>Of course, we will engage again in interactive seminars and workshops. We will practice in real life and in front of a camera again. The latter is part of the workshop on communication and negotiation skills and takes place in a confidential environment.</td>
</tr>
<tr>
<td><strong>Workload</strong></td>
<td>We calculate the workload during and after the seminar to be 30 hours (1 ECTS).</td>
</tr>
<tr>
<td><strong>Assessment</strong></td>
<td>The grade of the module will be the grade of the written exam. Prerequisite for exam registration is passing the pre-courses.</td>
</tr>
<tr>
<td><strong>Grading procedure</strong></td>
<td>The grade of the module will be the grade of the exam.</td>
</tr>
<tr>
<td><strong>Basis for</strong></td>
<td>All teaching and learning during this seminar is dedicated to the improvement of your skills in communication and negotiation and presenting yourself or certain hypotheses (key skills). This is also a basis for the Master's thesis preparation and presentation. Naturally, we expect you to employ the acquired skills also in your professional life and during discussions with peers, superiors and other healthcare professionals.</td>
</tr>
</tbody>
</table>
Quality Control
Modules referring to Management - Module 5

Code 8830771671

ECTS credits 2

Attendance time 5

Language of instruction English

Duration 1 Semester

Cycle each Summer Semester

Coordinator Prof. Dr. Tobias Böckers

Instructor(s) Prof. Dr. Susanne-Adelheid Esslinger, Prof. Dr. Dr. Afschin Gandjour, Lee Koch

Allocation of study programmes This course is an essential part of Module 5 on Management of the non-consecutive MSc Advanced Oncology study program.

Recommended prerequisites You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.

Learning objectives You should be aware and know about

• the advantages of stringent quality control in oncology
• the benefits of health economic evaluations in oncology
• how your behavior impacts your output as a leader
• how you can accomplish change in a corporate environment

After successful completion of this course, you should be able to

• implement stringent quality control in your working environment
• assess the benefit of oncology drugs based on health economic evaluations
• consciously and actively develop your leadership style
• accomplish change in your corporate environment.

Syllabus This course offers you interactive online lectures and primary literature accompanied by case-based learning and self-assessments during and after the lectures on the following topics:

• Introduction to quality control
• Health economic evaluations
• Individual behavior
• Group behavior  
• Influence of leadership and project management  
• Organizational culture and change  
• Strategic management  
• Communication and negotiation

You are invited to use the interactive forums anytime to contact the respective lecturers in the case of questions concerning the lectures or their implications.

**Literature**

This course is divided into learning units according to the different subjects. Each learning unit has its own page on the learning platform. On each page of the learning platform you will find links to the primary and secondary literature as well as other recommended readings. By following the links, you can easily retrieve the original literature using your kiz account and the academic environment of a university. Selected references are available upon request by direct e-mail to the study program coordinators. Some of the units contain Harvard Business Cases purchased for you. You should read and discuss them in the interactive forums.

**Teaching and learning methods**

This compulsory course is part of Module 5 on Management. It contains e-lectures, content-related business cases, literature, self-assessments and forums for an optimized learning environment.

At the end of this course, you must participate in a mandatory pre-exam assignment, a multiple choice quiz that you can answer from your place of studies but which you should pass by answering at least 60% of the questions correctly. You may repeat this assessment as often as you need in order to pass according to the Subject-specific Study regulations.

**Workload**

We calculate that the successful completion of this course requires 60 hours of work (2 ECTS).

**Assessment**

The award of the credit points in the ungraded module is based on a written exam.

**Grading procedure**

The module is not graded.

**Basis for**

This course should enable you to understand leadership practice in the context of oncology (subject-specific and methodological competencies). You might apply some of the principles within the context of your Master's Thesis. Beyond the course of studies, this course should enable you to manage your area responsibly with regard to general managerial aspects, particularly the management of human resources (subject-overarching competencies). It should also empower you to implement changes in the short and in the long term for the common good (key skills).
<table>
<thead>
<tr>
<th><strong>Summer Schools</strong></th>
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</tr>
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<tr>
<td><strong>Language of instruction</strong></td>
<td>Test</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>Semester</td>
</tr>
<tr>
<td><strong>Cycle</strong></td>
<td><em>keine Angaben</em></td>
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<td><strong>Coordinator</strong></td>
<td>Test</td>
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<tr>
<td><strong>Instructor(s)</strong></td>
<td>Test</td>
</tr>
<tr>
<td><strong>Allocation of study programmes</strong></td>
<td>Test</td>
</tr>
<tr>
<td><strong>Recommended prerequisites</strong></td>
<td>Test</td>
</tr>
<tr>
<td><strong>Learning objectives</strong></td>
<td>Test</td>
</tr>
<tr>
<td><strong>Syllabus</strong></td>
<td>Test</td>
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<td><strong>Literature</strong></td>
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<td><strong>Teaching and learning methods</strong></td>
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<tr>
<td><strong>Workload</strong></td>
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<td><strong>Assessment</strong></td>
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<tr>
<td><strong>Grading procedure</strong></td>
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</table>
Basis for Test
Summer School Challenges and Introduction
Modules referring to Summer Schools

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<tr>
<td>Duration</td>
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<td>Cycle</td>
<td>each Winter Semester</td>
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<tr>
<td>Coordinator</td>
<td>Dr. rer. nat. Uta Schmidt-Strassburger</td>
</tr>
<tr>
<td>Instructor(s)</td>
<td>Prof. Dr. med. Tobias Böckers, Prof. Dr. med. Buske, PD Dr. Jochen Lennerz, Ernestine Stoesser-Jost</td>
</tr>
<tr>
<td>Allocation of study programmes</td>
<td>This summer school is the first attendance seminar of the MSc Advanced Oncology blended learning study program.</td>
</tr>
<tr>
<td>Recommended prerequisites</td>
<td>Admission to study program according to admission statutes</td>
</tr>
</tbody>
</table>

**Learning objectives**

During this first seminar, the focus is on mutual acquaintance and familiarization (awareness) with the

- use of the moodle learning platform
- online teaching methods
- use of electronic library and databases
- knowledge of examination regulations
- knowledge of the evaluation system
- module contents
- how to diagnose and differentiate malignancies (overview)
- structure of CCCU,
- function of an interdisciplinary tumor board
- scope and timeline for master thesis

After this module, we expect you to be (more) proficient in

- the use of the Advanced Oncology-tailored learning platform
- the use of your kiz account for the retrieval of scientific information
- the use of literature management systems for scientific purposes
- communicating with your pathologists concerning ambiguous diagnosis and critical cases
• networking with oncology professionals from all over the world

This course aims to improve your
- subject-specific competencies
- methodological competencies
- subject-overarching competencies and
- key skills

**Syllabus**

During this first seminar, we will focus on the upcoming challenges in the study program and the introduction of people who will help you to achieve your goals within the study program.

These are the formal topics of the seminar:

- Introduction to the study program
- Introduction to online teaching technology
- Introduction to online teaching methods and tutors introduction
- Introduction to the communication and information center (KIZ)
- Introduction to the university’s library and databases
- Introduction to the Comprehensive Cancer Center Ulm
- Visiting a tumor board at Ulm university hospital
- Introduction to examination regulations
- Introduction to evaluation system
- Mutual introduction
- Module presentation
- (Molecular) Pathology workshop
- Master thesis: scope and first discussion
- Introduction to Personal Coaching

The pathology workshop will be held both at the Reisensburg Castle as well as at the Institute of Pathology of Ulm University.

At your disposal is a personal coach who will work with you towards your personal goals throughout the duration of the study program.

**Literature**

All literature needed will be specified during the lectures and seminars. You are always welcome to ask.

**Teaching and learning methods**

This is a compulsory course of the MSc Advanced Oncology.

After a first introduction of the Ulm University responsible for this study program and welcome addresses, we meet for the formal enrolment with a representative from the Office of the Registrar. This representative will check your documents before formally enrolling you in the study program.

This is followed by an interactive seminar, during which the new class becomes mutually acquainted and where we figure out working partners for upcoming learning assignments. Afterwards, our media designer and IT specialist introduces the e-learning environment to you. Together with a representative from the
Kommunikations- und Informationszentrum of Ulm University (kiz), we familiarize ourselves with the kiz account for e-mails and its further functions. In addition, we conduct an interactive workshop for database research and literature retrieval.

We practice the e-learning during a first supervised e-learning session with a lecturer of the course and her/his lecture. Afterwards, we evaluate the session and familiarize ourselves with our study plan and student duties. A first discussion of prospective Master thesis topics and the assignment of prospective thesis supervisors paves the way for a successful and timely submission of the thesis at the end of the fourth semester.

During an interactive workshop, we learn about and practice decision analysis, a useful tool for health economic assessments. Also, we revise general pathology during an interactive lecture and during interactive quizzes with group games. In addition, we practice some of the analyses we learn about at the Institute of Pathology and in an electronic classroom at Ulm University.

Next, we attend a tumor board of the Comprehensive Cancer Center of Ulm University (CCCU), where we meet one of the speakers of the CCCU and many of the teaching faculty. We observe case discussions and the decision making processes as well as the professional conduct of the lecturers.

We collaborate with a scientist who specialized in personal coaching. She will introduce her methods to you and will be available upon your personal request.

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Workload
We calculate a workload of 30 hrs (1 ECTS) for this seminar.

Assessment
The award of the credit points in the ungraded module is based on regular attendance. No prerequisites are necessary for exam registration.

Grading procedure
The module is not graded.

Basis for
This seminar is the introduction to the learning platform and enables you to use all resources linked to the study program to your best benefit. As such, it is the basis for all e-learning modules as well as the Master's thesis (methodological competencies).

Of course, we expect you to apply the newly gained insight also during your professional encounters with other health care professionals (key skills).
Summer School Future Perspectives
Modules referring to Summer Schools

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<td>Language of instruction</td>
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</tr>
<tr>
<td>Duration</td>
<td>3 days Semester</td>
</tr>
<tr>
<td>Cycle</td>
<td>each Summer Semester</td>
</tr>
<tr>
<td>Coordinator</td>
<td>Dr. rer. nat. Uta Schmidt-Strassburger</td>
</tr>
<tr>
<td>Instructor(s)</td>
<td>Ass.-Prof. Dr. Patriciu-Andrei Achimas-Cadariu, Dr. rer. nat. Uta Schmidt-Strassburger, MD, Prof. Dr. Wolf-Dieter Ludwig</td>
</tr>
</tbody>
</table>

Allocation of study programmes
This is the last on-site module of the MSc Advanced Oncology.

Recommended prerequisites
You should be an enrolled student or an alumnus of the MSc Advanced Oncology study program.

Learning objectives
During this last attendance seminar, we ask you to present your Master’s thesis project to your Ulm University-based supervisors and your peers from the study program. We expect you to present the data you have acquired so far by applying the skills you have gained from your previously attended communication training, the biometry classes and SPSS training we provided, the database search and literature management training we provided and the knowledge you have gained throughout the different modules on the proper conduct of original research.
We also expect you to discuss the data of your peers critically, but in a solution-oriented manner.

What challenges are there in building or running a cancer center? We will follow short introductory talks by lecturers with experience in the field and will identify possible solutions for the numerous challenges in real life in different cultural environments.

Another challenge in today’s modern medicine are economic constraints when providing care. We will discuss the challenges and possible solutions with a renowned expert of the field.

This course aims to improve your
- subject-specific competencies
- methodological competencies
- subject-overarching competencies and
- key skills

| Syllabus | We will direct our focus towards the future:
| --- | --- |
|  • In doing original research or systematic reviews you pave the way for the improvement of the situations that you are assessing. You will present your Master's thesis and discuss your own data as well as the ones of your peers.  
• You will learn and discuss about challenges in building and running cancer centers  
• Health economic considerations entail both a challenge and a solution to modern medicine. You will repeat and deepen your knowledge in decision making processes under the guidance of an international expert. |

| Literature | The lecturers will share their sources with you upon request. |

| Teaching and learning methods | This compulsory course consists of  
• an interactive seminar of health economic assessments  
• your own and your peers' thesis presentations under the supervision of your local supervisors  
• an interactive workshop on challenges in building and running cancer centers  

There will be many occasions for interactions with your peers and the younger class as well as with lecturers from Ulm University.  

During this summer school, you will have once more the occasion for a personal coaching session. |

| Workload | We calculate you to invest 60 hours of work (2 ECTS) in the preparation and the conduct of this seminar. This workload has been estimated with regard to your proper thesis presentation. |

| Assessment | The award of the credit points in the ungraded module is based on regular attendance. No prerequisites are necessary for exam registration. |

| Grading procedure | The module is not graded. |

| Basis for | The participation in this seminar is the basis for your graduation and an outlook for future joint projects with peers and faculty (key skills). |
## Master Thesis

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<th><strong>Code</strong></th>
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<tbody>
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<td><strong>Language of instruction</strong></td>
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<tr>
<td><strong>Duration</strong></td>
<td>1 Semester</td>
</tr>
<tr>
<td><strong>Cycle</strong></td>
<td>each Semester</td>
</tr>
</tbody>
</table>
| **Coordinator** | Dr. Uta Schmidt-Straßburger  
Dean of Studies |
| **Instructor(s)** | Lecturers of the Medical Faculty and the Faculty of Natural Sciences |
| **Allocation of study programmes** | The written thesis is an essential part of the MSc Advanced Oncology study program. |
| **Recommended prerequisites** | You should hold a BSc. degree or comparable and have professional experience in the field of oncology in addition, as defined by the admission statutes of Ulm University.  
You should have successfully completed modules 1 (Summer School) and 2 (Interdisciplinary Oncology) before registering your thesis work. |
| **Learning objectives** | The written thesis should prove that you have acquired the following skills:  
• you perform original scientific projects in the field of oncology  
• you summarize your data in a written report in the context of published data  
• you critically discuss published data related to your project in a scientific presentation  
• you comply with good scientific practice |
| **Syllabus** | The thesis subject can be chosen according to your own research interests under the guidance of the scientific director in order to assure feasibility of the project within the timeframe of the study program.  
The subject should be related to at least one of the four online modules  
• Interdisciplinary Oncology  
• Clinical Research  
• Clinical Oncology |
• Management

Whether you chose
• to write your own study protocol,
• to assess data retrospectively in an approach to improve quality control,
• to assess registry data with the goal of benchmarking or
• to sum up published knowledge in your field of interest in a systematic review

is your choice. You should be dedicated to this project in order to ensure its successful completion.

<table>
<thead>
<tr>
<th>Literature</th>
<th>The literature depends on the individual thesis subject and should be accessible via the kiz account, publicly available library or online resources.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching and learning methods</td>
<td>In order to prepare for the thesis, we teach scientific writing in interactive in-person and online seminars. Your scientific director will be at your disposal for more detailed discussions. By working on your thesis, you learn to critically assess your own and the work of others. You learn to develop ideas and hypotheses and to identify and apply methods to answer these appropriately. You will become also be more aware of the limits of your different choices, methodologically and contentwise. Discussing your written work with your supervisors enables you to improve in the scientific dialogue and your data presentation and writing skills. In summary, working on your thesis enables you to act as a scientist.</td>
</tr>
<tr>
<td>Workload</td>
<td>In order to complete this module successfully, you should dedicate at least 450 hours (15 ECTS) to your thesis work. Considering this workload, make sure to dedicate approximately 10 hours per week for your thesis project for approximately one year in order to finish in due time.</td>
</tr>
<tr>
<td>Assessment</td>
<td>Written composition reviewed by two examiners</td>
</tr>
<tr>
<td>Grading procedure</td>
<td>Arithmetic mean of the individual marks of the two examiners</td>
</tr>
<tr>
<td>Basis for</td>
<td>You can only finish the MSc Advanced Oncology study program successfully by passing this module having acquired the <strong>key skill</strong> to conceive, plan, conduct and finish a scientific project employing the <strong>subject-specific, subject-overarching and methodological competencies</strong> you have acquired during the courses.</td>
</tr>
</tbody>
</table>