

Orientation Programme at ZiWiS

Mastering your studies Information, key knowledge and learning strategies





Orientation Programme at the Center for Applied Philosophy of Science and Key Qualifications (ZiWiS)

Mastering your studies Information, key knowledge and learning strategies

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GOS

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ABBREVIATIONS

BA	Bachelor of Arts
BSc	Bachelor of Science
BAfÖG	Bundesausbildungsförderungsgesetz; Federal Education and Training Assistance Act
BVB	Bibliotheksverbund Bayern; Bavarian Library Network
c. t.	cum tempore (a seminar or lecture starts 15 minutes later than the announced time)
CP	Credit Points
DAAD	Deutscher Akademischer Austauschdienst; German Academic Exchange Service
DBIS	Datenbank-Infosystem; Database information system
ECTS	European Credit Transfer and Accumulation System
FAU	Friedrich-Alexander-Universität Erlangen-Nürnberg
FAU-St	FAU student survey
FPO	Fachstudien- und Prüfungsordnung; Degree programme and examination regulations
FSI	Fachschaftsinitiative; Student association
FSV	Fachschaftsvertretung; Student committee
GOP	Grundlagen- und Orientierungsprüfung
GOS	Grundlagen- und Orientierungsstudium; Orientation programme
HiWi	Hilfswissenschaftler/-in; Student assistant
IBZ	Informations- und Beratungszentrum; Student Advice and Career Service
IdM	FAU Identity Management
IZI	IT-Betreuungszentrum Innenstadt; IT Helpdesk City Centre
KVK	Karlsruher Virtueller Katalog; Karlsruhe Virtual Catalogue
LA	Lehramt: Teaching degree
LL B	Bachelor of Laws
LL M	Master of Laws
МА	Master of Arts
M.Sc	Master of Science
N.NC	numerus clausus; Admission restrictions
NN	nomen nominandum (literal English translation: the name is still to be given; often used to an
	nounce courses where it is not yet clear who will teach them)
OPAC	Online Public Access Catalogue
PD	Privatdozent/-in; Freelance lecturer
PR	Praktikum: Laboratory/practical course
QuiS	Qualität in Studium und Lehre: Quality in Teaching and Studies
RIA	Referat für Internationale Angelegenheiten: Central Office for International Affairs
RRZE	Regionales Rechenzentrum Erlangen: Regional Computer Centre Erlangen
s.t.	sine tempore (a course or class starts exactly at the given time)
SEM	Seminar
SoSe/SS	Sommersemester: Summer semester
SSC	Studien-Service-Center: Student Service Centre
Stuve	Studierendenvertretung: Students' Representatives
SWS	Semesterwochenstunden: Semester hours
UB	Universitätsbibliothek: University Library
UnivIS	Universitätsinformationssystem: University Information System
vhb	Virtuelle Hochschule Bavern: Virtual University of Bavaria
VORL	Vorlesung: Lecture
WiMi	wissenschaftlicher Mitarbeiter/wissenschaftliche Mitarbeiterin: Research associate
WiSe/WS	Wintersemester: Winter semester
ZfL	Zentrum für Lehrerinnen- und Lehrerbildung: Centre for Teacher Education
ZiWiS	Zentralinstitut für Wissenschaftsreflexion und Schlüsselgualifikationen:
	Center for Applied Philosophy of Science and Key Qualifications
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INTRODUCTION

ABOUT THIS READER

This reader contains information on how to organise your studies, basic guidance for academic work and tips for learning techniques and preparing for exams. It is aimed at new students as well as students in the later stages of their studies. Depending on your degree programme and subject, you will encounter some of these topics in your first semester, other aspects may only become relevant for you at a later point in time. You can read the individual chapters completely independently from each other or use the reader for ideas and reference as a »self-help study guide«. Three arrows ►► ► indicate a box in which you will find helpful information and tips. At the end of the reader you will find selected literature references for the individual chapters which you can also use to explore specific topic areas. It is worth trying out different textbooks.

Another important point to remember: there is no »one-size-fits-all« approach to studying. While we have endeavoured to structure the topics summarised here to provide guidance for students of all subjects, it is not possible to cover subject-related conventions such as specific ways of dealing with literature (»citation guidelines«), language conventions for written work or basic scientific methods.

ORIENTATION PROGRAMME – GOS (ger.: Grundlagen- und Orientierungsstudium)

The Orientation Programme (GOS) at the Center for Applied Philosophy of Science and Key Qualifications (ZiWiS) is an interdisciplinary programme for all FAU students. It aims to help students to develop and expand core skills that are relevant for their studies. This is done in three main areas:

- Orientation for new students
- · Programmes to promote personal development and skills
- Seminars on academic writing and methodological skills

As part of the successful FAU application »Quality in Teaching and Studies – QuiS«, the GOS is funded by the Federal Ministry of Education and Research under the nationwide initiative »Quality Pact for Teaching« (further information at www.quis.fau.de).

Contact

Grundlagen- und Orientierungsstudium (GOS) Zentralinstitut für Wissenschaftsreflexion und Schlüsselqualifikationen / Center for Applied Philosophy of Science and Key Qualifications (ZiWiS) Bismarckstraße 12, 2. Stock 91054 Erlangen gos@fau.de www.ziwis.fau.de/gos Facebook: GOS – Gut Orientiert Studieren

THE UNIVERSITY

FRIEDRICH-ALEXANDER-UNIVERSITÄT ERLANGEN-NÜRNBERG (FAU)

- Founded in 1743 by Margrave Friedrich of Brandenburg-Bayreuth and supported by Karl Alexander of Brandenburg-Ansbach: Friedrich-Alexander-Universität
- Largest university in Northern Bavaria (for figures see https://www.fau.eu/university/about-fau/
- Comprised of five faculties:
 - Faculty of Humanities, Social Sciences, and Theology
 - Faculty of Business, Economics, and Law
 - Faculty of Medicine
 - Faculty of Sciences
 - Faculty of Engineering
- The faculties are organised into departments. Each department comprises different subjects which are represented by chairs and professorships. The chairholder is a professor. Each chair has various employees with different areas of responsibility (research, teaching, administrative and advisory activities):
 - Academic staff (e.g. senior academic staff/directors, research staff, assistants, etc.)
 - Administrative staff (e.g. Secretary's Office)
 - Student assistants (»Hiwis«), research assistants, tutors
- In addition, there are numerous central organisational units such as the university library with various tasks in research, teaching and administration.

LINKS

General

- FAU website: www.fau.de
- FAU blog service: www.blogs.fau.de
- FAU on Facebook: Universität Erlangen-Nürnberg
- UnivIS (course catalogue, contact details): univis.fau.de

Organisational matters

- Identity Management: www.idm.fau.de (manage your user account, personal details and services)
- FAU card: www.zuv.fau.de/universitaet/organisation/verwaltung/zuv/card (including information about functions, updating, profile settings, card blocking, etc.)

Practical matters

- University library (UB): www.ub.fau.de (searching for literature, ordering literature, training, etc.)
- Regional Computer Centre Erlangen (RRZE): www.rrze.fau.de (hardware and software for students, training)
- Software: www.rrze.fau.de/hard-software/software/private-nutzung/ (e. g. Microsoft Office, VPN client)
- FAU video portal: www.video.uni-erlangen.de (lectures, presentations)

Information and advice services

(for the complete range of services see www.fau.de/studium/im-studium/beratungsangebote/):

- Office of Equality and Diversity: Implementing equality between women and men, support for students with a migrant background
- Student Advice and Career Service (IBZ): Job portal, careers advice, job fair
- · Subject advisors: degree programme-specific guidance by faculty staff

- FAU Family Service: advice and information for studying parents, organisation of childcare
- Student Advice and Career Service (IBZ): general advice on all FAU degree programmes (study options, subject combinations, admission regulations, application procedures, study plans, examination requirements, changing degree programmes, etc.)
- Examinations Office: examination registration, accreditation of examination achievements, admission to examinations, final academic records, examination regulations
- Counselling Service operated by Student Services: support is available should you experience difficulties during studies or with examinations, social anxiety or problems with your partner or parents
- Legal advice from Student Services: e.g. in case of problems with accomodation
- Central Office for International Affairs (RIA): stays abroad, scholarships abroad, support for international students and visiting scientists
- Student Records Office: Enrolment and re-registration (dates), de-registration, leave of absence guidelines, change of subject, dual studies, guest students and mature students, student health insurance, exemption applications
- Student Services: BAföG applications, student accommodation, advice on private accommodation, etc.
- Student Service Centre (SSC): Advice on degree programmes at each faculty
- Students with disabilities: see IBZ
- Admissions Office/Scholarship Office: Admission procedure for German and non-German applicants, scholarships

UNIVERSITY MANAGEMENT AND ADMINISTRATION

- Universities are managed through various bodies, some of which involve student participation (see figure).
- Decision-making and governing bodies are
 - the Senate for the entire university (tasks include decisions on appointments of professors, statutes, admission figures, budget proposals, degree programme and examination regulations)
 - the University Council, which consists of elected members of the Senate and representatives from the fields of science, culture, business and professional practice (tasks include electing the President and Vice-Presidents)
 - the Faculty Council for the faculty (tasks include degree programme and examination regulations, awarding degrees)
- The university strives to involve the following groups: University lecturers, research associates, students, non-academic staff (ratio 6:2:2:1 in the respective bodies).
- Students have a right to vote and stand as a candidate in **university elections**.
- Student committees
 - The **General Student Committee** represents the interests of all students at FAU, particularly to the university leadership and the state (for example advising on project applications from students, discussions on political developments in higher education or specific issues such as studying as a parent). The General Student Committee is elected by the Student Council.
 - The **student committees (FSV)** represent the interests of students at their faculty, including the faculty management and the departments (for example improving study conditions).



See: https://stuve.fau.de/mitbestimmung/wahlen/(accessed: 10.07.2019), slightly adapted.

Thanks to the Quality Management Office of the Faculty of Humanities, Social Sciences, and Theology and the School of Theology for additions to the content.

STUDY ORGANISATION

COURSE REGISTRATION AND EXAM MANAGEMENT

Course registration and exam registration and management is handled differently by the different subjects. Therefore, please read the study information on the website of your subject(s) first. You can also find information on course registration in the course catalogue (univis.fau.de \rightarrow »Lehre: Vorlesungsverzeichnis«). Alternatively, you can ask the relevant Secretary's Office or your lecturer.

As a rule, you will have to register for examinations yourself, please note the applicable registration periods. If you are unable to take an exam for any reason, please do not forget to de-register in good time. Depending on the exam and subject, this may only be possible with a medical certificate.

The most commonly used **platforms for course registration** (depending on subject and lecturer) are:

- StudOn: www.studon.uni-erlangen.de (registration for courses, course information and material)
- mein campus: www.campus.uni-erlangen.de (registration for courses, exam management, overview of grades)
- Registration by e-mail to the lecturer
- Automatic exam registration
- Language Centre: www.sprachkurse.uni-erlangen.de
- Some subjects have their own registration platform

Exam registration and management: www.campus.uni-erlangen.de

All you need to know about examinations:

https://www.fau.de/studium/im-studium/pruefungen-studienordnungen/ (degree programme and examination regulations, registration deadlines, notes and forms)

The **Grundlagen- und Orientierungsprüfung (GOP)** is not a separate examination; passing certain courses/modules after the second semester leads to passing the GOP.

- The exact details are set out in the degree programme and examination regulations (FPO).
- If you have any questions or problems, please contact your subject advisor or the Student Advice and Career Service.

The **General Degree Programme and Examination Regulations** for Bachelor's and Master's degrees set out the general conditions of study, and degree programme specific regulations are given in the FPOs.

STUDY PLAN, FORMS OF TEACHING

In some subjects you will receive a set study plan every semester. In other subjects (especially at the Faculty of Humanities, Social Sciences, and Theology) you have to put together your own study plan (univis. fau.de \rightarrow »Lehre: Vorlesungsverzeichnis«).

• It is essential that you observe the requirements in the FPO and the module handbook for your programme!

In your module handbook you will find detailed descriptions of all modules from your degree programme, e.g. content, learning objectives and ECTS credits (ECTS is the abbreviation for the European Credit Transfer and Accumulation System: ECTS credits are sometimes abbreviated as CP in Germany).

The workload for each module is indicated by the number of credits: **One ECTS credit corresponds to about 25 to 30 hours of work** for the student. The workload consists of attendance-based learning and self-study:

• Attendance-based learning: Time you spend attending tuition at the university, e.g. in lectures, seminars or tutorials, referred to as Semesterwochenstunden (semester hours, SWS)

• **Self-study**: Additional time that you need to deepen your knowledge of the course content, e.g. through continuous preparation and revision of lectures, literature research or examination preparation

Self-study may account for the larger part of the workload, depending on the subject. The increased selfstudy workload is one of the key differences between school and university. You have to plan independently, do your own research and take responsibility for preparing for examinations. Although attendance is not compulsory for lectures it is in your benefit to attend, e.g. to better understand complex facts, to distinguish important information from unimportant information and to recognise related concepts.

• Important: The actual workload per ECTS point varies depending on the module and individual requirements.

Example calculation:

- A module is worth 5 ECTS points, which corresponds to a workload of 125 to 150 hours (5 x 25 to 30 hours).
- The module involves e.g. attending a lecture comprising 4 SWS and a tutorial of 2 SWS, i.e. a total attendance time of 6 SWS.
- When calculating the workload, one academic hour (45 mins) amounts to one full hour (60 mins), the lecture period in the winter semester (WS) is 15 weeks, in the summer semester (SoSe) 14 weeks. Therefore, 1 SWS corresponds to 15 hours of attendance time in WS or 14 hours in SoSe.
- In this example, the attendance time is thus 90 hours (6 x 15) in WS or 84 hours (6 x 14) in SoSe.
- This leaves 35 to 60 hours for self-study (125 or 150 90) in WS or 41 to 66 hours (125 or 150 84) in SoSe.

A Bachelor's degree requires a total of 180 ECTS credits. Assuming a standard duration of study of six semesters, this results in an average of 30 ECTS credits per semester that should be achieved. Use this figure as the basis for your planning. Please note: 30 ECTS per semester (corresponds to 60 ECTS per academic year) and 46 working weeks (with six weeks of holidays) results in just under 40 hours of work per week.

In your module handbook you will also find information about which components are part of the **orientation programme (Grundlagen- und Orientierungsprüfung, GOP)**, which has to be completed by the end of the second semester. You must earn a minimum number of ECTS credits from the modules in the first year of academic study by the beginning of the lecture period of the third semester.

Differences between studying and school

- Often attendance is not compulsory \rightarrow but all content is nevertheless required for the examination
- Fewer hours in many cases (8 to 14 SWS possible) → it is essential to plan time for preparation and revision (use ECTS for guidance)
- Some weekdays you might not have any lectures → should be used for preparing for lectures and examinations (presentations, tests, written assignments etc.)
- Dates may overlap → completing modules must sometimes be organised over two (or more) semesters
- Semester structure: Lecture period outside the lecture period (not »holidays«!)
- Examinations are often concentrated in the last week of the lecture period and in the first week outside the lecture period → Long-term preparation of examinations and time management necessary (see chapter »Learning and preparing for examinations«)

The following forms of teaching exist at the university:

• Lecture: Usually has the most participants for a subject (between 20 and 500 or more depending on the subject); lectures involve teacher-centred instruction. The primary aim is for students to

acquire material in a structured manner and to deepen their own knowledge by preparing and revising their lecture notes.

- Seminar: usually smaller (depending on subject and focus between 10 and 50 participants) on a specific topic; active student participation (e.g. reading texts, holding presentations, discussion) is required. In addition to acquiring in-depth specialist knowledge, seminars encourage students to reflect critically and apply academic methods in the required assessment form while allowing academic exchange within the group.
- Tutorial class: Serves to deepen and practise the content taught in a lecture or seminar
- · Tutorial by student: Similar to tutorial class, mostly led by more experienced students
- Colloquium: A type of seminar (usually for more experienced students) in which students present and discuss their own (research) work or that of the Chair's research or external speakers are invited to hold presentations
- »Praktikum«: the German word Praktikum can refer to either practical work in a laboratory/research or to an internship in a company
- Field trip

NETWORKING AT THE UNIVERSITY

Studying generally involves doing much more independent work than you were probably used to at school. This gives you far greater freedom compared to school, but can also be challenging in terms of your organisational and self-management skills, especially at the beginning of your studies. It is important to establish a personal network when you start university by reaching out to fellow students, more experienced students, or student representatives/associations. This will enable you to exchange information and experiences with others and receive help and support or even offer it to others. Connecting with other students makes starting your studies easier – going it alone often makes it harder to find your feet. Later on in your studies, it is also worth maintaining your university networks and contacts with fellow students (e.g. preparing for examinations together).

WHAT CAN I DO IF I HAVE QUESTIONS OR PROBLEMS?

You'll find that most questions can be answered yourself by researching or reading the relevant information, e.g. in the course materials provided by the lecturer, in UnivIS, in the FPO, in the module handbook, on the bulletin board or on the Internet (see chapter »The University« under »Links«). Use this network to find the information you need to get ahead by asking fellow students, students from higher semesters or student representatives/associations.

If you still do not find an answer to your questions, there are several points of contact at the university. You should always try to answer the problems at the level at which they arose. If you have any questions about a particular course, contact the lecturer directly. For more general questions about your studies, the first port of call is the Student Service Centre (SSC) at your faculty. The SSC provides information on all organisational and structural matters relating to Bachelor's and Master's degree programmes (e.g. content and organisation of studies, dealing with problems in everyday student life, changing subjects). For more complicated questions, the SSC will help you find the right contact person. If you have any subject-specific questions, your subject advisors can also help you.

COMMUNICATION AT THE UNIVERSITY

General information on communication

- The contact details of the lecturers can be found in UnivIS (www.univis.fau.de).
- Clarify the preferred communication method of your lecturers (some prefer e-mail, others only want to be contacted by e-mail in exceptional cases).
- Directly after a lecture or seminar is often not the right time to discuss issues, as the lecturer may be on a tight schedule or doesn't have relevant documents to hand.
- **Important**: If you are taking on tasks in a seminar (e.g. a presentation) and are absent due to illness, **inform the lecturer as soon as possible and explain your absence!**

Office hours

- Make use of office hours: Every presentation and written assignment should be discussed in advance as part of your preparation during office hours. If you have other issues you need to discuss, it is a good idea to talk with your lecturer in peace and quiet.
- As a rule, the appointment is arranged in advance (via e-mail, secretary's office, list on the noticeboard, etc.).
- It is normally assumed that matters can be discussed in five to ten minutes. If you have a more extensive matter to discuss, an individual appointment will usually need to be arranged.
- Go to the office hours prepared (e.g. literature research already started, questions already identified, basic concept already developed, methodological design of presentations already considered).

E-mail

- Always specify the »subject«
- Pay attention to form of address (and title) and appropriate closing (»Dear Prof. xxx, Dear Dr. xxx«; »Yours sincerely«)
- Check spelling
- Pay attention to formal and polite phrasing
- No smileys, no abbreviations
- Use »proper« e-mail address, preferably your university e-mail address

Telephone

- Prepare content and find out who you need to talk to
- State your first name and surname, degree programme and course
- · Present the matter you want to discuss concisely and precisely
- Only call private numbers in emergencies (e.g. »I can't hold my presentation tomorrow.«)
- Do not send text messages

LEARNING AND PREPARING FOR EXAMINATIONS

LEARNING MOTIVATION

Motivation plays a major role in learning success – it gives you the necessary drive and helps you to »keep at it« when learning. There are two different types of motivation:

- Intrinsic motivation: Desire to learn something because the topic is fun or you are interested in it
- **Extrinsic motivation**: Desire to learn something because there is external pressure or prospect of a reward; an important special form of extrinsic motivation is **social motivation**, which is based on the fact that every person is influenced by his or her social environment and can also be encouraged by it.

In most cases, our actions are based on a mixture of intrinsic and extrinsic motivation.

Temporary motivation difficulties during your studies are completely normal and there are various ways to overcome them:

- You can increase your intrinsic motivation e.g. by creating clarity about your own (professional) goals and being more aware of what you are actually learning for (see chapter »Study and career goals«).
- Ways to increase extrinsic motivation include rewarding yourself for achieving interim goals (e.g. reading a good book after a long day of learning, going to the cinema or restaurant after passing an exam) or increasing social motivation by forming learning groups (see »Learning strategies for attendance-based learning and self-study«).

And don't forget that studying is not primarily about having fun. If there are individual subjects or teaching units that you enjoy less, this does not automatically mean you are studying the wrong subject. Sometimes you just have to »grit your teeth« during your studies.

TIME MANAGEMENT AND PLANNING YOUR LEARNING

SET GOALS

Good time management begins with identifying your goals. Think about what goals you are pursuing: Long-term (e.g. life or career goals), medium-term (e.g. study goals, next three years) and short-term (e.g. next weeks or months).

• • •	Important: Write down your goals!
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DEFINE CONCRETE TO-DO'S

Translate your goals into concrete tasks and activities. Split large goals into small, easily manageable work units (»bite-size technique«). Make yourself a master study plan (»guideline« for your studies; usually determined by the degree programme and examination regulations), which you can then break down into semester plans, week plans and day plans.

- Your time plan should not only include learning and working time (e.g. attendance-based learning and self-study), but also time for everyday life (e.g. part-time job, family) and leisure time (e.g. hobbies, recreation).

PRIORITISING

Set priorities – even if you currently have no problems with your time management. Priorities help to prevent you from running into time problems. For all your tasks, consider in which of the following four categories they belong (based on the Eisenhower Matrix):

- 1. Must: Tasks that are important and urgent (e.g. learning during the examination phase)
- \rightarrow do immediately
- 2. Necessary: Tasks that are important but not urgent (e.g. Preparing for a stay abroad)
- \rightarrow schedule
- 3. Urgent: Tasks that are urgent but not important
- \rightarrow Plan when convenient
- 4. Unimportant: Tasks that are not important and not urgent (e.g. answering unimportant e-mails)
- \rightarrow Reduce or bin

Things are not fixed in one category or another (e.g. sport or hair appointment is important at time A, unimportant at time B):

 \rightarrow Continually review

CALCULATE UNIVERSITY REQUIREMENTS

Information on how to calculate your workload during your studies can be found in the chapter on »Study organisation«.

- Talk to more experienced students or ask the student representatives/associations to get an impression of how much work is involved in the courses you want to take.
 - Be aware that a full-time degree programme is equivalent to a full-time job in terms of work hours, and that the time outside the lecture period is not to be viewed as holiday (seminar papers, internships ...).

CREATE A LEARNING PLAN

Once you have gained an overview of your learning workload for the semester, you can create a semester plan (and, based on this, weekly and daily plans). Remember that certain tasks should be scheduled at certain times during the semester:

- From the start of the semester:
 - Prepare lectures and seminars and review your notes afterwards (at least 20 to 30 mins each)
 - Gain an overview of topics and sub-topics as well as their weighting (e.g. past examination papers provide a good overview)
 - Check: What material is available to me for my preparation work and what I am required to have done? What other material do I need and how can I get it?
 - Mid-semester (after approx. four to six weeks):
 - Devise a concrete learning plan
 - Find people for learning group, schedule one session per week in the plan
 - · Work on one topic block per week or write summaries about it
 - End of semester (depending on subject, one to four weeks before the examination):
 - Write missing summaries, reduce the material
 - Revision
 - Do a practice examination

Your concrete learning plan should contain the following points:

- Tasks/learning topics plus time limits: What do I have to do/learn by when? → It is best to enter dates directly into the plan
- Priorities: What has top priority, what can I leave out if necessary?
- Regular progress monitoring: What can I already do, what do I still have to learn?
- In addition to learning time, also explicitly take into account time for daily life and leisure (see above)
 - Try to spread tasks without a fixed time such as presentations and talks over the course of the semester.
 - Plan »focus weeks« from time to time so you can focus on a certain topic.

FINDING AND USING YOUR OWN BIORHYTHM

Everyone's personal performance varies throughout the day. It is a good idea to get to know your own performance curve and to take this into account when planning your learning.

What this means for your time planning:

- Use the »Performance curve« (see figure) to think about what your own performance curve looks like.
- If you have the option, choose teaching courses and learning phases during your peak performance periods.
- Tackle new, less interesting or difficult learning material in particularly high-performance phases and use your low-performance periods for revising already learned material or doing shopping, visiting people, telephone calls, etc.

BREAKS

It is more effective to learn continuously over a longer period of time than to tackle a lot of material in a very short time. A maximum of six to eight (learning) hours per day is realistic. In order to properly internalise what you have learned, it is important to plan sufficient breaks.

Intervals	Duration	Activity (examples)	
As required	1 min	Have a quick stretch, take a deep breath	
After 30 to 60 mins	5 mins	Check e-mails, move your feet for a minute	
After 1.5 to 2 hrs	15 to 20 mins	Coffee break	
After approx. 4 hrs	60 to 120 mins	Eat, sleep	

- Include sufficient gaps in your daily, weekly and semester planning to remain flexible in case of unforeseen events.
- Identify your optimum learning times (incl. breaks).

Performance curve



(according to Hofmann; Löhle 2012: 77; the mean value is shown)

LEARNING STRATEGIES FOR ATTENDANCE-BASED LEARNING AND SELF-STUDY

TAKING NOTES

To ensure attending lectures supports your learning success, you should take notes during lectures. Effective notes require active listening.

Active listening:

- Motivates
- Increases attention
- Helps with thinking (e.g. following the structure of what is said, combining new information with existing knowledge, separating the important from the unimportant)

• If anything is unclear during the lecture, ask the lecturer directly if possible!

How to take good notes:

Content:

- Make a note of core contents (in key points)
- Clarify structure, line of thought: How is the lecture structured?
- Pay attention to keywords/phrases: »That brings me to point 2«, »In summary« etc.
- Highlight related points

Format:

- Clear, comprehensible layout, e.g. several columns for structuring, running notes and own thoughts
- Leave room for adding information

PREPARING FOR LECTURES AND REVIEWING YOUR NOTES

Preparation

It will be much easier for you to follow a lecture if you are well prepared.

If you are already aware of the topic and the contents, the brain can classify what you hear much better and the contents of the lecture fit more easily into the bigger picture. This helps you to remember the content better.

- Reading up on the subject, topic etc. (e.g. based on the set literature)
- Own research: What do I already know? In what context have I heard about this before?

Reviewing your notes

If possible, you should review the lecture content within 24 hours:

- Look up unclear terms, definitions etc. (in textbooks, dictionaries etc.)
- Read the recommended literature and include it in your own notes
- Connect the dots (»I've heard about that before in this or that context.«)
- Look for application examples if possible

Solving comprehension problems

Identify the problem:

- Where exactly is the issue? What basic knowledge might be missing?
- What else did I understand? What don't I understand any more?

Only once you have understood where the actual problem is will you be able to solve it (e.g. by asking the lecturers specific questions).

- Important: The earlier you do the follow-up work, the less knowledge you will lose and the more time you will save for learning later on.
 - 30 minutes of preparation is more effective than an hour of follow-up work.

Consolidate your notes

- Lecture notes even ones you have reviewed are not suitable for revision purposes as they are too extensive
- Therefore, structure your lecture notes into topic units (»bite-sized knowledge«)
 - Topically related aspects are not always presented directly together!
 - Use the structure of the lecture for orientation.

Colour coding

- Always use the same colour codes when working with materials (especially texts, but also mind maps etc.), e.g. according to information types (topic, core points, definitions, examples, etc.)
- Targeted highlighting (not too much and not everything)

Write your own summaries of specific topics

- Length depending on source material
- Compare your summaries with those of your fellow students what do they think is relevant and what not?
- · Consolidate everything from different sources into one summary
- Structure your learning material in such a way that it is easy to remember and can be called to mind when you need it (e.g. with colour coding)

»Crib sheet«: reduced summaries

- The most important points on just a single page:
 - Only core facts no explanatory details (these will come to mind automatically)
 - Make headings clear, mark key terms (visualise), highlight important points with highlighter (helps with remembering everything)
- Creating a crib sheet reinforces learning and often means you won't even need it

Mind maps

Visualisation helps you to grasp a topic. Mind maps adapt to the thought process because they can be changed and extended. Tips for creating a mind map:

- Use paper without lines, write the topic in the middle
- Put important information at the end of branches; connect branches with each other/with the topic
- Keywords can be added on smaller branches
- Use images and recurring symbols

To check your learning status: draw a mind map on a specific topic from memory

Learning system with index cards

- Front of card: question, keyword; Back of card: facts, diagram, drawing, formulas, etc.
- Box with three to five compartments: Place all the cards into the first compartment. Cards you have successfully learned can be moved into the next compartment, the rest stay. After a few days, repeat the second compartment; any cards you haven't learned go back into compartment one, the cards you've learned go into the next compartment etc. Work through the compartments each session until all the cards are in the last compartment. Repeat the cards in the last compartment again after a longer period of time
- Important: repeat at regular intervals in between, always reshuffle the cards in the compartments, note connections and examples on the cards
- Do it online, e.g.: https://apps.ankiweb.net (can be synced with smartphone)

Revision

To commit facts to long-term memory, the brain needs about six repetitions. Therefore:

- Revise facts promptly so you don't immediately forget everything again
- The more varied the »brain training«, the more you will remember:
 - Learn in different places
 - Use different colours for different topics
 - Try changing methods
 - Reading, seeing, speaking, listening (e.g. read out loud and save as podcasts, explain key points in your own words)
 - Move around (many people can think better when walking)

Learning groups

Forming learning groups can help with mutual motivation (see above) and also has many advantages with regard to the learning process, for example:

- dividing up the work for preparing large amounts of examination material within the group
- exploring learning material more intensively by discussing it and working through complicated content together
- practising oral examinations

When working in learning groups, you should pay attention to the following:

- Group size: max. four participants
- Planning necessary:
 - Set realistic goals and a fixed deadline or schedule
 - Delegate tasks (e.g. at the end of each session, set tasks for the next session)
 - Arrange regular meetings

- Important: The learning group is a useful addition to self-study but it is not a replacement!
- Use the online »doodle« service (https://beta.doodle.com/de/) to arrange times for your learning group meetings!

General tips on learning effectively

- It's easiest to remember what you learned at the beginning and at the end → Make sure you plan enough breaks!
- When you are trying to memorise what you have learned, more breaks are needed to commit information to memory than for when you are working through new content.
- Avoid distractions: Don't let the Internet distract you, only use it for reference/research; it is better to gather terms and look them up in batches during set »Internet time«.

• Find out which strategy works best for you!

LEARNING LOCATIONS

Suitable learning locations are places where you can learn well and without interruptions. For many students, this is their own desk or the university library. Others, on the other hand, have good results with learning at the open-air pool, park or café. Remember that not every learning location is suitable for every learning task. Before choosing a learning location, check whether you will need e.g. Internet access or extensive materials for your planned learning tasks.

 \blacktriangleright

- Try out different learning locations!
- Especially during intensive learning phases it can also be helpful to vary your place of learning and work.

LEARNING THAT LASTS

Rather than just superficial and short-time learning, it is worth learning in depth and for the long term. The knowledge you learn in early semesters is often the basis on which later semesters are built. If you use the right learning techniques from the outset, you can significantly reduce the learning effort required in later phases of your degree programme. Furthermore, knowledge that has been firmly committed to memory is also easier to call up in examinations.

Tips for efficient learning that lasts

- From general to specific learning (»helicopter learning«): First you learn chapter headings, then sub-headings, the content, starting roughly and later in more detail.
- Learn with all your senses: visualise, learn out loud, learn spatially, etc.
- Use waiting times (doctor/train/traffic jam) for revision
- Hang a summary above the kitchen sink, mirror, fridge, desk, etc. (that way you even do some learning subconsciously)
- Revising at night in bed for 10 to 20 minutes results in a high level of memory retention
- Efficient learning = conscious work + sleep + break time (more complex problems are best solved after a good round of sleep)

SUCCESSFULLY MASTERING EXAMINATION SITUATIONS

Key success factors in an examination:

- The contents of the examination → Not just memorising subject knowledge; potential applications, examples, interpretations, links and connections are also important
- The »packaging« → You must be able to apply subject knowledge in the form it is asked for in the examination (written, oral, multiple choice)
- Your mental state on the day \rightarrow Energy, relaxation, enough sleep, organisation, time management
- Random factors \rightarrow Luck, you can't plan everything, the more flexible you are the better

BEFORE THE EXAMINATION

- Make sure you check exactly how the examination will be conducted early on (e.g. duration and type of examination)!
- The last seminar/lecture hour before the examination is also important: this is where you are often told what is really important. Ask questions!
- Tutorials by students also provide pointers for important topics.
- Find out the examiner's area of expertise (this is often the area in which the examination will be conducted, as it is the one examiners know best).
- Ask yourself: How important is the examination? How much does it count? What result do I want to achieve in the examination? (learning effort vs. result)

Practicing examinations: Training under actual conditions

- Integrate training into your learning plan:
 - Think up your own questions, write them on small pieces of paper, prepare sample answers, pick three questions at random a day to answer as an exercise (How would I ask an examination question on this topic? What logical questions can be asked about this? Often there are not that many possibilities!)
 - Think from the examiner's perspective (What exactly do they want to know?)
- If possible, use past examination papers or ask more experienced students
- Practice exam (same time and length as the actual exam); best done away from others, e.g. in the library; give marks to your work afterwards to check yourself (Where do I stand?)
- Ask and answer examination questions in a learning group: verbalising knowledge is important and reinforces the learning effect!

DURING THE EXAMINATION

Written examinations

- Before the start, pay close attention to the lecturer's instructions
- Read questions carefully, watch out for questions with multiple parts! What exactly does the question on encompass?
- How long is the examination, how much time do I have per examination question? How many points are there for each question?)
- Start with a question that can be answered without much thought (e.g. favourite topic), then concentrate on the task worth the most points
- Don't get too caught up in individual questions and go into too much detail if there are still open questions to be answered (if necessary, write down what comes to mind in bullet points)
- At the end, check whether you have answered all of the questions (and all parts of each question!)

Oral examinations

- Often more of a discussion than purely question-answer format → Interact, talk with the examiners (do not stay silent)
- Pay good attention to any tips, hints and indications from the examiners (they often lead you in the right direction); the examiners usually want to help!
- Don't get too complicated in your thoughts; try to explain complicated things simply
- When in doubt ask: »Did I understand that correctly or did you mean something else?«
- When it comes to safe topics, go for as much mileage as possible; topics you're not so sure about should be kept short; you can also try to skilfully redirect to a safe topic, if possible.

AFTER THE EXAMINATION

Although this examination is now over, use what you have learnt to prepare for the next examination!

- What was good? What was unnecessary? What do I want to change?
- Am I satisfied with the result? (learning effort vs. result)
- Take the opportunity to review feedback from the examiner or if possible, ask to see your corrected paper. What exactly were my mistakes? How was I assessed? What are my strengths? What else do I need to work on? Learn from your mistakes for the next examination!
- Adjust your learning plan for the next time if necessary

WHEN THINGS DON'T GO SO WELL: STUMBLING BLOCKS AND SOLUTIONS

How to deal with procrastination

Stumbling block:

You know exactly what tasks are on your to-do list, but fail to defeat your »inner sloth« and finally get started. You tend to put off unpleasant tasks.

What can help:

- Break down large tasks into many smaller tasks and start with the first easily manageable task; then continue step by step until all of the smaller tasks are done. Important: stick at it!
- Put yourself under a little pressure by taking the first step that forces you to keep going (e.g. write to the lecturer and ask to arrange a meeting in the near future to discuss the exact content of your presentation)
- Reward yourself for reaching interim goals

Postponing examinations:

Postponing examinations can be useful in individual cases, but as a rule the time specified in the degree programme and examination regulations for taking the individual examinations is useful both in terms of content and with regard to your workload. Postponing multiple exams may result in you facing an insurmountably difficult number of remaining exams at some point. Therefore, check carefully whether it makes sense to postpone an examination in your particular case and whether you can still meet all dead-lines (e.g. for taking the GOP).

Excessive perfectionism?

Stumbling block:

You feel stressed and inefficient because you always want to give 120% and have very high expectations of yourself.

What can help:

- Find a healthy middle ground: be a perfectionist when it comes to important things (such as examinations that count towards a significant part of the overall grade, personal projects you are passionate about); but be more pragmatic when it comes to less important things
- Observe the Pareto principle (80/20 rule): usually 20% of the time you invest leads to 80% of the result

 \rightarrow Many tasks do not have to be done so thoroughly in order to still achieve a noticeable success

· Set (realistic) time limits for completing tasks and keep to them

What to do about »time wasters«?

Stumbling block:

You feel that it takes far too long to complete tasks. You regularly find yourself asking where your time has gone at the end of the day.

What can help:

- Self-observation: Over a period of 14 days, document exactly what you spend your time on every day → Identify individual »time wasters« (e.g. aimless TV/surfing the Internet, e-mails/telephone/ chatting) and consider how to eliminate them or make better use of this »lost« time
- Set fixed learning times and minimise disturbances during these times (e.g. switch off mobile phone/wifi)
- Gather together similar activities (e.g. housework, literature research in the library) and work through them »in one go«

How can I balance the demands of different areas of life (e.g. studies, part-time job, private life)? Stumbling block:

You feel that your studies are completely consuming you and that other areas of your life are being neglected. Or conversely, it is difficult for you to find time for your studies on top of your many private commitments and obligations.

What can help:

- Self-observation: Over a period of 14 days, document exactly what you spend your time on every day → How much time do you dedicate on the individual areas of life that are important to you? Does any area receive too little attention? Think about specific ways you could create more space for this area (e.g. by reducing the time for another area) → Create a »balance« between the different areas
- Pay attention to good time management: Make schedules, set correct priorities, eliminate time wasters. Important: when planning, explicitly consider not only learning time, but also time for daily life and leisure (especially relaxation, see above)
- Clearly separate the different areas (e.g. plan eight hours per day of pure learning time in a separate learning location and eight hours of time for daily life or leisure in a »learning-free« zone)

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• Get into the habit of good time management, e.g. by incorporating new patterns of behaviour into your daily routine and linking them to existing habits (e.g. setting a schedule for the next day every evening between brushing your teeth and going to bed; getting up on time every morning, having breakfast and then sitting down at your desk).

ACADEMIC LITERATURE

PUBLICATION TYPES

Academic literature is divided into independent and non-independent works. Independent works, such as a book, are complete in terms of content and physically, and are fully listed in library catalogues (e.g. monograph, collective volume, journal). Non-independent works are part of another work and usually take the form of articles in journals and anthologies. When using and citing non-independent works, it is therefore necessary to name the independent work in which it was published in full.

....

 The way in which source and literature references are to be formally structured in the bibliography or within a text depends on the subject. Please check your subject for citation guidelines or ask your lecturer.

• If you don't have any guidelines, always use consistent citation!

Monograph

- Comprehensive, self-contained publication on a single subject, a single work, a specific problem or an individual person
- Usually one author, but also author collectives

Dissertation and habilitation thesis

- Types of monographs
- Academic thesis
- · Address topics that have not yet been examined in this way before

Handbook

- · Can be a special form of monograph or also a collective volume
- Deals comprehensively and fundamentally with a topic relevant to the subject area (e.g. historical epochs, methods of a subject area)
- Provides an overview of the most important theories on the topic covered

Text book

• Similar to a handbook but explicitly geared to teaching content (e.g. through integrated exercises)

(Technical) lexicon or (technical) dictionary

- Contains information on the meaning and use of (technical) terms
- Includes detailed articles on key topics related to the subject
- Authors are usually named
- Provides an overview of key theories

Encyclopaedia

- · Factual information or information about an object
- Comprehensive reference book with a wide range of topics (all knowledge or knowledge of a subject area)

Collective work, collective edition

- Compilation of scientific or academic articles
- Several authors write about a common general topic
- The articles can be read as independent texts (comparable to an article in a journal)
- Supervised by one or more editors
- Also includes colloquium or conference publications and commemorative publications

Journals

- Collected articles, miscellanea, reviews
- Published regularly (periodicals)
- Represent the current state of research
- Can be topically broader or narrower in scope
- Frequently associated with research institutions, museums or archives

Article (in journal or collective volume)

- Deals with individual aspects of larger topics in a concise form
- Can deal with (very) specific topics or provide an overview of a topic

Miscellanea

- Short essay on a topic
- Information on current research projects

Review

- Assesses the quality of a publication
- Summarises the content and line of argumentation of the reviewed literature and in relation to the current state of research
- Goal: to highlight the relevance of the reviewed text in terms of content

> > >

- Read several reviews about a publication.
- The tables of contents in journals provide an overview of (current) research debates, discussions and developments.
- Academic discussion usually takes place in articles, essays and papers!

SCIENTIFIC PUBLICATIONS

(colloquially also called »papers«)

Most scientific publications are written in English, as English is considered to be the globally accepted and used language of science. Publications in natural science journals are often structured as follows:

- »Title«: Title of the work and author(s)
- »Abstract«: short, concise summary (approx. two to three paragraphs) of the main theses and results
- »Introduction«: Introduction to the topic (including short literature review), usually ends with the question or objective of the work
- »Methods«: describes the procedure used for the experiments, materials used and equipment
- »Results«: Presentation of the results including visual representation of the data obtained (e.g. tables, diagrams)
- »Discussion«: Interpretation of the results, (self-critical) classification in the research context
- »Summary«: Similar to the abstract, but more future-oriented
- »References«: Bibliography

The contents and titles of these components may vary slightly from journal to journal.

E-BOOKS AND ELECTRONIC PUBLICATIONS

Publishers increasingly offer an (usually identical) electronic edition of their publications in parallel with the printed edition. However, only a few of these publications are freely available as full texts on the Internet. The services subscribed to by the university library can be accessed from campus workstations.

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- Not all relevant literature is available in electronic form!
- Install a VPN client on your own computer. You can then access the university network from (almost) anywhere using your IdM user account! (Instructions: https://www.rrze; fau.de/dienste/internet-zugang/vpn)

ONLINE RESOURCES AND WIKIPEDIA

Can I use and quote literature from the Internet?

When selecting online sources – as with print literature – attention must be paid to the academic level and quality (see chapter »Assessment criteria«). The general rule is that:

- Because anyone can make content available on the Internet, there is greater onus on users for checking the quality of online content than for editorially managed media.
- Most digital, academically relevant content is stored in (password-protected) databases, i.e. search engines cannot access these publications.
- Even high-quality journalistic sources are not considered academic literature (e.g. www.zeit.de; www.sueddeutsche.de; www.faz.net; www.spiegel.de)!
- Knowledge on the Internet is subject to rapid change.

Wikipedia

This online encyclopaedia does not follow the basic principles of academic discourse and is therefore not suitable for academic use:

- It is not always clear who the author is
- Lack of transparency regarding internal and external editing
- Contents can be changed at any time by anyone (look at the discussion thread!)

General information

- Use academic websites
- Definitions, explanations of technical terms and academic theories should never be obtained from the Internet but from relevant literature (published, also as an e-book)
- Find subject-specific reference works (via subject portals, institute website, relevant textbooks)
- Archive Internet sources: printout/PDF with URL, date of retrieval; also search history

Before using

- Check for reliability: Author, website operator (university, research institution...), legal notice or about us page; are there comments in forums and blogs? What other information is on the website?
- Check whether and how the content is permitted to be used based on the licences listed on the website; this is particularly relevant for using image material and also for audio and video material (Open Access: open-access.net; Creative Commons: http:// de.creativecommons.org/).

SELECTION CRITERIA

Using the following criteria, you can check the academic level of publications and distinguish them from popular and non-academic literature. It is important to note that not every article of a suitable quality can be automatically classified as academic literature:

- Authorship must be clearly documented
- Target group of the publication is specialists or researchers
- **Quality assurance** by peer review, academically known editors and authors known within specialist fields
- Publisher is renowned and specialised in academic publications
- Presentation is rather formal in style, organised and clearly structured
- Language is factual and at a specialised level (specialised language, technical terms)
- Contents are verifiable by source references, citations, bibliography

Asking further questions can help to assess the quality of the literature you have found:

- What qualifications does the **author** or **publisher** have? Does he/she belong to an academic institution? Does he/she have commercial interests? Are there ideological influences, what is the socio-political context? Is he/she mentioned in other publications? Have you already heard of his/ her name in a lecture?
- Is the **topic/question** relevant (for the research field)? How often is the publication quoted? Are new aspects being examined? Is the topic discussed controversially, are verifiable facts mentioned and supported by relevant sources?
- **Existing research**: How extensive is the bibliography? Is foreign-language literature also taken into account? How up-to-date is the research? Are important/renowned authors on the topic quoted?

How usable is the literature you have found?

Context:

- Does the publication belong to the same research context as my work?
- Relevance:
 - How up-to-date is the publication?
 - Does the publication cover an aspect of the topic?
 - Does the publication (content, argumentation) provide information which is useful for addressing your question?

Non-usable information

- Other research context
- Irrelevant content
- Non-academic sources

General information

- Check which keywords are used to classify the publication in the database or library catalogue
- Check title, publication details, table of contents, bibliography; read preface, introduction, abstract; read reviews

SEARCHING FOR LITERATURE: LITERATURE RESEARCH

What does literature research mean?

The term literature research refers to the professional search for information in academic literature. Literatur research is strategically planned and requires certain knowledge and skills which distinguish it from regular searches. Researchers need to identify possible sources, know fundamental terminology used in the academic field and information science and break down the topic into logical keywords.

The aim of literature research is to explore the existing (theoretical) knowledge on a certain topic in order to use it for your own academic work and justify your arguments, hypotheses and theses. Literature research is thus a fundamental component of academic work, as the information gathered in this process is essential for verifying and contextualising research findings regardless of the discipline.

Researching suitable literature

- is an essential process for academic substantiation
- is conducted systematically and is therefore not left to chance
- can follow different strategies depending on subject, topic and previous knowledge. Independent literature research is generally an important part of studying at university.

Purpose of literature research at university

- Preparing for and reviewing lectures
- For presentations, written assignments, handouts, etc.

Preparing for examinations

RESEARCH MEDIA AND SOURCES OF INFORMATION

The range of research media and sources of information depends on the type of information and the type of literature or publication you are searching for. Be aware of the following:

- Depending on the purpose and question, certain media may be more useful.
- No source covers all the information you are searching for. Each research strategy also conceals relevant results in a »blind spot of information« (Franke et al. 2010: 2).
- In practice, this means choosing a combination of several methods.

Catalogues (e.g. OPAC of the UB, BVB, KVK) are actually used for literature procurement and are only suitable as a research medium to a limited extent.

- They are location-bound, i.e. they provide information on where the listed publication is located, whether it can be borrowed, etc. (The university library catalogue only lists publications that are available at FAU locations. It is also possible to order publications from other libraries via interlibrary loan. The first point of contact here is the Bavarian Library Network BVB.)
- As a rule, local catalogues only contain independent works such as books and journals, but not essays.

Bibliographies provide a comprehensive overview of literature on a specific topic.

- They are not location-bound, i.e. they give no information about where a publication is located (many bibliographies are available in digital form and can be accessed via DBIS).
- The content of these publications varies greatly (subject areas and topics considered, place and date of publication, recorded publication form, etc.).

• Start to collect bibliographies and sources (analogue and digital) relevant to your subject and list libraries with useful collections.

• Information on literature management can be found in the chapter »Reading and annotation«.

SEARCH ENGINES

Although general search engines such as Google or Bing quickly provide a great deal of information, they also have some disadvantages and are therefore only suitable as a search medium for academic purposes to a limited extent:

- Much academically-relevant content remains hidden from search engines (databases, e-journals, licensed e-books, library collections), as search engine web crawlers (computer programmes that automatically search the World Wide Web and analyse or index web pages) cannot process restricted-access content or content accessible via search screens.
- Knowledge is not properly organised according to formal and content-related criteria:
 - Diverse form and quality of results
 - Relevant content is not necessarily listed first
- High number of hits
- Internet content is constantly changing:
 - Everything that has not been indexed is missing (too new, not available ...)
 - Websites that are no longer valid are still indexed
- Try out academically related search engines (Google Scholar, BASE etc.)
- Get to know search engines and how they work (read FAQs): What is found, what is not? How can I define the search?
- Compare results (e.g. https://bvsg.org)
- Tips and further information on search engines: http://www.suchmaschinen-datenbank.de/

PLANNING LITERATURE RESEARCH

Good planning will save you work later on. Targeted literature research requires precisely defining your topic and identifying search terms: the more precise your search term list, the more precise the results.

Clarifying your position

- Reason for research, type of work (presentation, thesis, handout, seminar paper, Bachelor's thesis ...), target group (students, specialist audience) → determines type, breadth or depth of information
- Clarify research question and methodology, set objectives → determines information sources, search terms, searched publication types
- Subject areas which relate to the topic \rightarrow determines information media, search terms
- Own level of knowledge \rightarrow determines research structure and gathering of initial information
- Type of information you want to find \rightarrow determines where research is carried out

Find search terms

- Narrow down and analyse the topic
- Formulate the topic
- Identify keywords
 - Formulate questions and theses
 - Differentiate between overarching terms and subordinate terms
 - Find related terms
- To increase the hit rate:
 - Use specialist/technical terms
 - Use alternative spellings
 - Include synonyms
 - Include terms in foreign languages

- Use synonym dictionaries (e.g. www.synonyme.de; https://synonyme.woxikon.de)
- Use thesauri (e.g. www.openthesaurus.de; use specialised thesauri: leads to meaningful research and helps you to become well versed in the subject and terms used)
- Use technical or specialist dictionaries

WHAT YOU FIND DEPENDS ON HOW YOU SEARCH: SEARCH STRATEGIES

Different search strategies go hand in hand with each other and are complementary. Ideally, literature research should be systematic: Define the research question, choose search terms, select bibliographies and databases, devise your research strategy, review the literature you have found, obtain required literature, document your research. In practice, however, literature research often begins unsystematically.

The following ways to get started will help you to identify the topic more concretely and gain a first impression of the available secondary literature in preparation for systematic research.

The bookshelf: Classification

- Select a book on the topic from the shelf and look at the neighbouring books
- Also: OPAC, »Systematic Search«, »Classification«

The standard work: A quick overview

 Choose a handbook or standard work on the topic (either from the literature list for the seminar or a work frequently mentioned in the literature) to gain an overview of the topic and current secondary literature

An interesting title: Introduction to the topic

• Pick an interesting title to narrow down your own research question

The »snowball system«

- Select a publication that is as current as possible and check the literature listed there
- Disadvantages: Authors may (deliberately) exclude other research trends; the most recent literature is (possibly) not used.
- Document your research (search history): date of query, place of the query, search terms, keywords, etc.
 - Note details: Location; borrowable? Local lending/interlibrary loan? When ordered/reserved?
 - Adjust and correct research strategy after initial round.

The University Library regularly offers research training and provides extensive e-tutorials: https://ub.fau.de/lernen-arbeiten/beratung-schulung/e-tutorials/; accessed: 4 July 2019.

READING AND ANNOTATION

READING DURING YOUR STUDIES

When?

- To prepare for and review lectures
- In preparation for examinations
- As the basis for presentations and written work
- Out of interest in the subject
- ...

Why?

- To acquire and refresh knowledge
- To get to know theories, models, concepts, procedures and techniques
- · To be able to relate different research positions to each other
- To be able to put your existing knowledge in a wider context
- To create the basis for a critical debate
- To broaden your horizon

• ... How?

Compared to reading mainstream literature or newspapers and magazines, reading academic texts is often perceived as laborious: It is difficult to concentrate, to pay undivided attention to the text, to stay mentally awake and to remember what you have read. That's why it's important to pay attention to:

- Posture: Adopt a conscious »active« posture
- Self-motivation: Find intrinsic motivation or create incentives for motivation (see also chapter »Learning and preparing for examinations«)
- Ability to concentrate: Plan at least 30 minutes of undivided attention, actively working on the text, avoid distractions
- · Ability to interpret: Mentally review what you have read
- Memory performance: Review what you have read in such a way that you will remember it
- Plan your time: »Slower is faster« it is not important how quickly you have read the text but how effectively

PREPARING FOR THE READING PROCESS

Before you start reading, you should first answer the following questions:

- Why am I reading this text?
 - \rightarrow Determines working strategy and reading method
- Is the text suitable for this purpose?
 - \rightarrow Relevant for choosing the right text type, author, publication date and type
- How complex is the text? What difficulties can I expect?
 - \rightarrow Determines if you need additional resources or preparation
- What do I already know about the topic? → Activates existing knowledge structures
- Can the knowledge that I'm interested in be expressed in questions that will guide my reading process?
 - → Enables targeted reading (see SQ3R method)

READING AND ANNOTATION STRATEGIES

Depending on the purpose of your reading, you can use different reading and annotation strategies.

HIERARCHICAL READING

If you are dealing with academic texts that are difficult to understand, it is not advisable to read them word for word from beginning to end (linear reading). Instead, hierarchical reading is recommended – it is also quicker. Hierarchical reading is a general reading strategy that you can use for all text types.

First reading: Gain an overview

- Browse text, read headings, look at diagrams, particularly for academic articles read the abstract
- Decide: Is this relevant to my work or not?

Second reading:

- · Read individual passages according to interest
- If you are not interested, quickly move on to the next point
- Carefully read and highlight important information, note keywords (essential information in the text) in the margin and ideally summarise it briefly

SQ3R METHOD

The SQ3R method is a technique for reading texts and learning effectively. It enables you to extract the essential information from a text, e.g. to avoid having to read it again later. This method is particularly suitable if you want to deal with a text in depth, e.g. relevant texts for your final thesis. SQ3R stands for:

Survey

Familiarise yourself with the text first. Flip through it, read headings, keywords and summaries. Look at the structure of the text, look at figures and tables. This will give you a first impression of the structure and content of the text.

Question

Formulate possible questions about the text. The question type depends on what you want to find out. (Are you reading the text to prepare for an examination, as preparation for a presentation or as potential literature for your final thesis?)

Read

Now it's time to deal with the text. Read the text section by section, which is where the main work is involved. Let your formulated questions guide your reading and read the text actively – highlight important keywords and connections, make notes in the margin. If anything is unclear, find more information on the text – you can only remember something if you understand it.

Recite

After each larger section, make sure you write a recap, i.e. think about what you have read and put it into your own words: What were the topic and key message of the section, what were the keywords and how are they related? After several sections you should also write down what you have read in a summary or – even better – draw up mind maps using different colours.

Review

In the last step, you should review the entire text. Answer the overarching questions. How can the text be put into the overall context? Briefly reflecting for a few minutes will really help you to put what you have read into context and remember it.

- \blacktriangleright
- To master difficult texts, try noting down the purpose and key contents of each paragraph. At the end you will have a detailed overview of the text.
- In order to understand the line of argumentation, you can link together contents, arguments and theses using arrows or other logical connectors on an extra sheet.
- In order to really understand a text and remember the most important information in the long term, you can go over definitions and key ideas afterwards without the text.

LITERATURE MANAGEMENT

Especially with larger projects – above all your final thesis – it is extremely important that you manage your literature. The way in which you do this is also very important. There are several options. For example, you can create a reading file or use a literature management programme such as Citavi or EndNote. This will save you a lot of time at the end.

When managing your literature, make sure you:

- Note down full bibliographic details
- Write a short summary for each text including the main thesis and keywords
- · Mark citations, paraphrases and own comments/questions differently
- Citations and paraphrases must always have a page reference
- Make a note of what text passages/tables/figures are to be used for
- Note whether the text was read in whole or in part or which sections were not read
- In literature management programmes you can assign sources to your own keywords or main topics in order to find the text more easily later on.
- FAU students can use the literature management programmes Citavi and EndNote free of charge.
- The Regional Computer Centre Erlangen (RRZE) offers courses on how to work with literature management programmes.

WHEN THINGS DON'T GO SO WELL: STUMBLING BLOCKS AND SOLUTIONS

Solving comprehension difficulties

Stumbling block:

- You don't understand contents/specialist terms
- You don't understand the structure of the text
- You can't relate what you have read with a context

What can help:

- · Gain an overview: Not only of the text, but also of the topic area
- Read carefully, work through the text step by step (see SQ3R method)
- Write down your results
- Obtain tools for clarifying direct comprehension questions (e.g. lexicon, technical dictionary, encyclopaedia, introductions to the subject)
- Mark anything that is unclear in the text with a pencil or make a separate note (many questions will be clarified over the course of reading)

Solving motivation and concentration difficulties?

Stumbling block:

- Not starting with your reading
- Getting tired quickly
- Being easily distracted

• Sometimes reading this, sometimes reading that

What can help:

- Pay attention to posture
- Create the right reading environment
- Devise a time plan (and keep to it!)
- Switch off distractions
- Actively plan in breaks
- Use self-motivating measures (e.g. reward system; see chapter »Learning and preparing for examinations«)

ACADEMIC WORK

Students often first engage with academic methods in the content that they are taught. The purpose of teaching is for students to learn specialist knowledge and subject-specific methodological skills. In this process, students also learn the fundamental concepts of academic work.

But students are also part of the academic community. Academic training therefore also includes »research«, which, in addition to the forms of teaching listed in the chapter »Study organisation« (e.g. lectures, seminars), also includes written assignments, seminar papers and final theses. In your research you need to show that you can critically reflect on a topic and that you can work on your own or a set question using the relevant literature and suitable methods. You will also acquire interdisciplinary skills which are essential (not only) for research:

- Ability to cope with large amounts of knowledge
- Orderliness
- · Ability to quickly familiarise yourself with new topics
- Joined-up and interconnected thinking
- Autonomy
- Ability to communicate and work in a team
- Language skills
- Versatility
- Creativity

CRITERIA FOR ACADEMIC WORK

One of the core tasks of academic work is the expansion of knowledge. This also means that new insights can be gained by looking at established knowledge from a new perspective. This gives rise to the following general criteria for academic work:

- **Methodological transparency**: Clear indication of how and by what means the research question is answered
- **Objectivity**: Objectivity and plausibility based on verifiable sources and (as far as possible) without the influence of personal opinion
- **Consistency of statements**: Consistency is a fundamental requirement for academic work (also consistent use of terms)
- **Justification of statements**: By drawing on knowledge that is as reliable as possible (substantiation on with figures, facts and/or citations)
- **Stringency**: Clear line of thought, e.g. through causal (cause-and-effect), functional (purpose-means) or other logical connections
- Precision in use of definitions and terms: Basis for understanding
- FAU paper »Richtlinien zur Sicherung guter wissenschaftlicher Praxis«: https://www.fau.de/files/2014/03/Satzung_gute_wissenschaftliche_Praxis.pdf; accessed 4 July 2019. Regulations for safeguarding good scientific practice https://www.fau.de/ files/2019/01/2017-10-10-Regulations-for-safeguarding-good-scientific-practice.pdf; accessed 4 July 2019.

CENTRAL ASPECTS OF ACADEMIC WORK

RESEARCH QUESTION

A specific research question

- is the starting point for academic research/work
- results from a problem, a gap in knowledge, a supposition or out of curiosity
- provides orientation when writing the paper
- sets out what knowledge will be gained by the investigation
- should be able to be answered at the end of a research investigation
- can be converted into theses/hypotheses.

FORMULATING THESES AND HYPOTHESES

The terms »thesis« and »hypothesis« are not always clearly separated in literature. The word **thesis** refers to an unproven statement.

A thesis is therefore a simple assertion that

- requires justification by means of argumentation,
- stimulates controversial discussions,
- is to be distinguished from a statement of fact (»Napoleon crowned himself Emperor on 2 December 1804 in the presence of the Pope.«) and generalisations that are uncontroversial in the respective field (»The Napoleonic Wars changed the political structures in Europe.«).

A **hypothesis** (H) is a supposition. Hypotheses can be used to justify theses. It is expected that scientific hypotheses will be confirmed or disproved.

- There is a relationship between an assumption and its variable (usually causal or correlational statements).
- Usually several hypotheses can be derived from one thesis.

Thesis: »Educational success depends on the social status of the family.«→ H1: »The more parents earn, the more likely their children will study at university.«

→ H2: »If the parents have studied at university, then this increases the probability that their children will also study at university.«

ACADEMIC LANGUAGE

In contrast to everyday language, academic texts require a formal style. However, there is not a universal standard for academic language. A number of largely generalisable principles can serve as orientation:

- Dialect and colloquial expressions are not used, technical/specialised language should be used instead
- Frequent use of noun phrases, abbreviations and acronyms
- Use of »I« and »we« is avoided, instead passive constructions are frequently used (this is handled differently depending on the subject)
- · Precise differentiation between supposition and verifiable facts
- Maintenance of impartiality
- Readers are not directly addressed
- Clear structure of sentences and argumentation

WRITTEN WORK

TEXT GENRES

- Seminar paper/written assignment: Serves to explore academic topics
- **Handout:** Serves to inform the seminar participants about findings; usually no longer than three pages and contains an outline, a summary and if relevant tables, figures, etc.
- **Poster:** Contains information about the objective, theoretical foundation, investigation procedure, method and key results of a project (primary objectives: concise, structured and creative)
- **Protocol:** Should accurately recount meetings/experiments/attempts etc. Provides information: must also be understandable for others and should give an overview with a clear structure
- **Final thesis:** Bachelor's or Master's theses through which students demonstrate their academic capability. It focuses on intellectual comprehension of the research question, theoretical foundation, conclusiveness of the research design, stringency of the evaluation and interpretation of the data
- Doctoral thesis based on completed doctoral research project
- **Postdoctoral thesis:** Further academic research which is usually the prerequisite for acquiring a professorship

FORMAL ELEMENTS OF WRITTEN WORK

As a rule, academic texts have a formal structure alongside the actual content. Formal criteria such as the cover page, bibliography and table of contents are arranged differently depending on the chair/department.

- The bibliography must
 - comply with formal criteria (e.g. alphabetically ordered)
 - have a standard format
 - be accurate.
 - The cover sheet may include:
 - University name, seminar
 - Name of the lecturer
 - Date
 - Title
 - Your name, e-mail address (so you can be contacted), possibly your student registration number,
 - Subject, possibly semester number.
- The **table of contents** structures the line of thought followed in your work and facilitates systematisation, orderliness and intellectual comprehension:
 - The structure must be consistent and logically coherent.
 - Each item must have a clear relation to the main topic of your work.
 - Individual subheadings must not be the same as the main topic of your work or the headings of subsequent points.

• Make sure you ask for internal guidelines for written work!

PLANNING A WRITTEN ASSIGNMENT

(e.g. in humanities and social sciences)

A written assignment or thesis should follow a clearly defined schedule. Work phases:

- Phase 1: **Orientation** (topic, objective, framework conditions) **and planning** (drafting the outline of the text, structuring the connections into main and secondary aspects)
- Phase 2: **Research** (collect, borrow and read material, structure material)
- Phase 3: Write the text
- Phase 4: Revise the text (check lines of argumentation, add transitions, add material)
- Phase 5: Final correction

Work plan for an academic paper of approx. 20 pages					
Overall planning	3 weeks	2 weeks		1 week	
	Clarify topic, read literature, structure	Write draft version		Revise text	
Writing period		1 week = 5 days approx. 4 hours/day	1 week = 5 days approx. 4 hours/day		
		10 pages	10 pages		

DOCUMENTING EXPERIMENTS

(e.g. in scientific practical work)

For scientific experiments or tests it is very important to sufficiently document the exact procedure and your observations. But what does »sufficiently« actually mean?

- You must record the experiment setup in writing including the exact execution of the experiment and the observations you make during the experiment/test as well as any immediate results. This serves as proof of the work you have carried out and also forms the basis for successfully completing most practical work. Always document the literature you use to prepare for your experiments.
- The type of documentation varies in the individual scientific disciplines and is also named differently. Terms such as laboratory book, laboratory journal or (test) protocol usually mean experiment documentation. Whether your written work should also include an introduction with your experiment hypothesis, i.e. your supposition about the outcome of the experiment, or an evaluation including discussion of the results, depends on the requirements of the respective practical work. Ideally you should talk to your supervisor about which documentation requirements are applicable at the beginning. You can also ask your supervisor for a suitable example or example protocol.
- It is advisable to write down too much rather than too little so as not to forget any details (which can ultimately have a decisive influence on the test result). Your documentation should always be detailed enough so that people with specialist knowledge can repeat the experiment without further questions. Avoid colloquial wording when creating your protocol and keep everything in a factual style.
- Writing protocols is an important part of scientific work. Only if your experiments and results are well documented will you be able to prove that groundbreaking insights are your intellectual property and thus your scientific accomplishment! This is why documenting experiments is such an important part of your scientific training at FAU.

GUIDING THE READER

STRUCTURING YOUR TEXT

The importance of structure

To ensure that a reader can follow and understand your text, the ideas and content must be written and linked together in a coherent structure that develops logically. When you write a text, ask yourself: What do I have to explain first so that the following arguments are understandable?

Recognising structural elements in a text

- The table of contents shows the logical structure of a text through
 - the order of the chapters,
 - the logical relationship of the chapters to each other (main and sub-chapters),
 - the overall coherence of the text.
- The visual structure of the paragraphs corresponds to the content structure. A paragraph indicates
 - a caesura in a line of thought,
 - a new topic, or
 - the end of the line of argument.
- The **linguistic structure** ensures the understandable and unambiguous coherency of your argumentation and serves to guide the reader. Connectors are linguistic devices that create relations between content elements, connect text sections, combine chapter sections to form a chapter, and finally to link text sections to form a complete text. Examples of connectors include:
 - Conjunctions (because, after ...)
 - Conjunctive adverbs (therefore, consequently...)
 - References
 - Nominal phrases (contrary to, with reference to, taking into account ...).

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- Before starting the writing process, create a structural outline as a tool and guide.
- Put the table of contents into words and explain it to check for coherence.
- At the end of a larger section or chapter, write a short summary to check the coherency of your line of thought.

How to structure a text

The structure of a text can be built from different points of reference and pursue different objectives accordingly.

- Factual logic (derived from the topic): Factual text, systematic presentation
 - · How can I systematically present my topic?
 - Which aspects do I have to present step by step?
 - What framework do I have to create in advance so that these aspects can be understood?
 - How do I then need to relate the individual elements, parts, basic units to each other?
- Target audience perspective (reader-centred): Argumentative text
 - What do I want to tell my readers?
 - What information do they need to follow the topic?
 - What arguments and evidence do I need to use to convince my readers?
 - Action perspective (trace own work process): Report form
 - What have I done to come to a result?
 - How did I go about it?
 - What material have I generated?
 - What results have I obtained?
 - How did I interpret them?
 - What do they mean?

You may use more than one perspective, but it helps to choose a primary perspective to determine the order and focus of your content.

Finding, structuring and focusing the topic - helpful questions

- Narrow down the topic
 - Which areas/sub-aspects belong to this topic?
 - What especially fascinates/interests/perplexes me and why?
 - What (critical) observations have I made in this area?
 - Where do I see room for critical reflection/identifying problems?
- Finding a research question
 - What research questions can be derived from this?
 - What links do I see? (look specifically for connections)
 - Select terms/ideas that do not have much in common at first glance, compare them and then note similarities and differences
 - Also: Construct connections, dependencies, contexts
 - How do the individual aspects relate to each other?
 - Why are the relationships like this?
 - Which question interests me more than the other questions?
 - Can I tackle the complexity of this question by asking additional questions?
 - Do I have/are there certain (working) hypotheses on this topic that can be formulated?
- Focusing the question
 - Why do I want to answer this question? \rightarrow Outline your observations that led to the question
 - How will I approach this question methodologically? \rightarrow Determine the focus/ orientation
 - What content do I want to convey?

ARGUMENTATION

What does argumentation mean?

- · Convincingly present and substantiate your own position
- Respect counter-positions and present them in a fair, understandable and plausible manner → This makes your text credible!

Why is argumentation necessary in research?

- To justify something
 - \rightarrow Why do I think a statement/position/research opinion is true/false?
- To present research
 - \rightarrow Why is this or that research approach preferred today?
- To interpret something
 - \rightarrow How does my knowledge affect the way a fact is understood?

What is an argument? How is it structured? How does argumentation work?

- An argument substantiates the truth of a statement, e.g.:
 - Statement \rightarrow logical reference \rightarrow proof
 - It has rained <u>because</u> the road is wet.
 - Justification based on everyday knowledge: When it rains, the road is wet.
- Statement and proof can be further specified.
- · Counter-arguments are cited, taken seriously and refuted.

Statement we should consider to be true	Proof	Specification	Counter-argument	Disprove counter- argument
It has rained	because the road is wet.			
		It must have rained within the last two hours.		
	The road is wet		because there was a road cleaner on the road and it made the road wet.	
				No road cleaning is carried out in our city on Sundays.

(Example from: Kruse 2010: 99ff.)

Rhetorical elements for academic argumentation

Rhetorical element	Characteristic	Typical formulations
Assertion/thesis	A statement which we claim to be valid	It is to be assumed that
Proof	A reason why we should consider the statement to be true	It is certain that because/for the reason that This assertion is supported by Proof of this is is justified by
Rule of inference (often not explicitly stated)	Justifies the argument with a general statement	If X, then Y A leads to B
Supporting knowledge	Cites academic knowledge justifying the rule of inference	Research on has shown Investiga- tions into have revealed
Counterarguments, counter-opinions	State positions/opinions/proof which see- mingly contradict your argumentation	It can be objected that It is also argued that An alternative position ist
Refutation	Puts forward arguments that refute the counter-position	These arguments/statements must be refuted because This argument is contradicted by However, it has been shown
Concession	States why the counter-arguments are not completely groundless	Worth taking into account is the fact that Nevertheless it should be considered that It is true though that
Qualifying	Draw consequences from the counter- arguments for your own positions	The validity of this assertion must therefore be limited to This argument only applies if and in the event that

(Adapted from: Kruse 2010: 103f.)

NOTES ON USING SOURCES AND LITERATURE

Academic papers use academic sources to support their argumentation; the **sources** used are **listed without exception**.

Citations

Citation means »taking a text passage from a source and documenting it in such a way that it can be found again at any time.« (Niedermair 2010: 169). Citations can only support your work, not replace it.

What do I have to cite?

• Everything you take from written material (books, essays ...) as well as from concept papers or from oral presentations.

Each citation must fulfil a purpose, e.g.:

- An argument or counter-argument is based on the cited content.
- It has a link with your own work.
- It serves to explore the cited work.
- It is required for interpretation.
- It has a particular (stylistic) function.

General citation guidelines

- The author and source must be clearly visible for each citation.
- The source references contain all relevant information: Author [surname, first name], title, subtitle
 if applicable, edition, place of publication, publisher if applicable, year of publication; for articles in
 collected volumes additionally: name of publisher, title of collective volume, pages; for articles in
 journals also: name of journal, year, volume, pages.
- Foreign-language texts are cited in the original. Your own translations of foreign-language texts must be indicated as such!
- Direct and indirect citations are indicated by a footnote or source reference in brackets. (A direct citation is a word for word citation: it is reproduced with exactly the same words between quotation marks. An indirect quotation reproduces the meaning of a text excerpt: the text is paraphrased, i.e. the basic thoughts are summarised in your own words.)

Plagiarism means »consciously [taking] third-party intellectual property ..., in whole or in part, verbatim or paraphrased ... or as a translation of a foreign-language original« (Translated from Niedermair 2010: 169), i.e.

- the source is not listed,
- the separation between the adopted content and your own input is not made sufficiently clear, or
- it is intentionally taken for the purpose of deception.

- · Only use sources you have read and understood yourself!
- If possible, always cite the original source (and not, for example, articles that refer to this source).
- The difference between plagiarism and careless work is not always clear. Bottom line: Work carefully!

WHEN THINGS DON'T GO SO WELL: STUMBLING BLOCKS AND SOLUTIONS

Every day I think: Today I'm going to start!

• Begin with one to one-and-a-half hours of writing per day and then gradually increase your writing workload

Sitting alone at your desk is no fun.

- Ask yourself the question: Is this place of work suitable for me? Is it equipped so I can write well?
- Create a suitable atmosphere (can also be in the library or café)
- Check your motivation

The empty page stays blank ...

- Do introductory exercises: What interests me about this topic? What's the relevance? What do I know about the topic?
- Develop realistic expectations: Even professionals rarely write more than two to three pages a day.
- Read (overcomes writing blocks)
- Create a rough outline and note down aspects that belong to each item and then summarise each item.

I can't get on with the topic.

- Option A: »Get stuck in«; organise your work into manageable units; try to get support/good supervision; establish the relevance of the topic
- Option B: Narrow down the topic by talking to the lecturers/tutors.

What I'm writing is rubbish!

- Check your expectations
- · Get an external opinion: Have someone proofread your work, contact lecturer
- Consider writing as a process: Never delete or throw away unfinished documents even draft versions can serve as the basis for further work

PRESENTATIONS

Holding presentations is an essential part of many degree programmes. In this chapter you will find information about how to prepare and design presentations.

PREPARATION

Before you even start preparing your presentation, you should try to talk with your lecturers and clarify the following aspects:

- · Exact topic and content of the presentation
- Scope of the presentation (max. duration including time for discussion, possibly number of Power-Point slides)
- Function/objective of the presentation, e.g. text summary, short introduction to a topic or stimulus for discussion
- Integration into the seminar, e.g. one-off presentation in a seminar or one of several presentations on a series of topics.
- · Permitted or desired aids, e.g. PowerPoint, handout, flipchart

In addition to developing the content of the topic (information on this can be found in the chapter »Reading and annotation«), preparing a presentation also involves the didactically formulating the topic as a presentation and practising the presentation.

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• Start preparing early on so that you do not run into time pressure unnecessarily. Good content preparation also prevents uncertainty and nervousness during your presentation.

GENERAL TIPS FOR EFFECTIVE PRESENTATIONS

In contrast to a written paper, the target audience of a presentation consists of listeners instead of readers. Therefore, the following should be taken into account when preparing your presentation:

- Verbally and visually clarify the outline, order and structure of the presentation, e.g.:
 - Distribute handout (with outline)
 - · At the beginning of the presentation, briefly explain what you will cover in the presentation
 - · If you are using PowerPoint: Repeatedly show the outline slide if necessary
 - Language: Refer back (e.g. »as already explained«), announce in advance (e.g. »I will go into this in more detail as part of ...«), etc.
- Inspire interest
 - Create relevance (e.g. explain why the topic is still exciting today)
 - If possible, create a link to non-academic reality (e.g. through examples from daily life)
 - · Integration into the seminar: Connection to previous presentation/next topic
 - Directly involve listeners (e.g. »as you have no doubt read/heard/seen«, »perhaps you have asked yourself before«)
 - Show your own enthusiasm for the topic
 - Reduce your content effectively
 - Listeners can only take in a certain amount of information; therefore carefully consider how much detailed knowledge needs to be presented
- Pay attention to comprehensibility and clarity
 - Always adapt the structure and content of the presentation to the audience's existing knowledge (target group orientation!) and the specific context (e.g. type and size of the lecture)
 - · Listeners have little time to think about complicated things; therefore make sure you illustrate

and explain theories and abstract content through concrete examples, statistics, etc.

- List technical terms, names, data etc. on a handout or write them on a flipchart or blackboard
- Maintain the attention of your audience
 - The audience's attention span is limited (max. 10 to 15 minutes for »monotonous« presentations), so especially in the case of longer presentations:
 - Use different media and methods, e.g. free presentation and PowerPoint slides, refer to handout, have the audience read short texts, develop something on a flipchart or blackboard, show caricature or video, etc.
 - If possible: Address listeners directly (e.g. »please look at diagram XY«) or encourage them to participate (e.g. by asking questions, doing short exercises, reflecting on something, etc.)

MEDIA AND AIDS

POWERPOINT PRESENTATIONS

Content and structure

A PowerPoint presentation is usually intended to support (not replace!) the oral presentation. Please note the following points:

- Only show key information on PowerPoint slides
 - Key terms, keywords, names, technical terms, etc.
 - To make the main focus of the lecture clear
 - To prevent misunderstandings
 - Graphics, diagrams, images, maps, etc.
 - To visualise what is being said
 - Always need to be explained
 - · Source reference directly on the slide
- KISS principle (»Keep It Short and Simple«)
 - Do not overload slides, no more than seven bullet points per slide
 - Avoid long text passages or full sentences
 - Only put content on slides that you will actually be discussing during your presentation
- Structure: Insert slides again if necessary (»copy and paste«), e.g. if you want to refer to the contents again or to structure the presentation (see above)
- · List all sources at the end of the presentation

Design and layout

- Uniform design, try not to use PowerPoint designs (usually too busy)
- Background colour: neutral
 - For text: light grey, light paper colour
 - For images (photos, especially in colour): Neutral grey so that the colour effect is not distorted
- Use defined layouts (e.g. »Title and Content«)
- Use slide space effectively and in a balanced way:
 - Heading area approx. 1/7 to 1/6
 - Main area (can also be subdivided if required, e.g. into two columns)
 - Footer area
- Keep it clear: Do not pack with too many small elements (but make optimum use of space)

- Work with the PowerPoint slide master. This allows you to adapt the design and layout of your presentation quickly and easily.
- FAU presentation templates can be found at https://www.fau.de/intranet/fau-repraesentieren/PowerPoint-vorlagen/ (only campus network or VPN)

Colours

- As few as necessary
- Pay attention to colour balance
- Avoid red on green (colour blindness)

Font

- Font colour:
 - Depends on background; contrasts must be clear but not too harsh so that eyes do not become fatigued
 - White background: Very dark grey or blue (not black)
 - Light grey or paper colour background: Black
- Font:
 - Sans serif, do not use very narrow fonts, e.g. Arial or Calibri
 - No more than two fonts
- Font size:
 - Min. 18 pt; if the room size is unknown or for a large room and small projection area use at least 24 pt
 - Long picture captions in 12 or 14 pt

Animations

- Should be used sparingly, purposefully and uniformly; above all, avoid using animations for show, such as images or texts that fly in/out/explode/fragment/rotate
- Fade-in effects can be especially useful (e.g. if you don't want to immediately show all of the bullet points on a slide but want to fade them in one by one).

During your presentation remember:

- The audience can either listen (and take notes) or watch/read (and copy down information)
 - Therefore, allow sufficient time for them to take in each slide (rule of thumb: at least two minutes per slide)
 - 10-20-30 rule (source: Guy Kawasaki): No more than ten slides, no longer than 20 minutes, font size no less than 30 (only applies university presentation to a limited extent but still useful as a guideline)
- Do not read out the slides: The audience always reads faster than the speaker!
- FAU's Regional Computer Centre Erlangen (RRZE) offers courses on working with PowerPoint for students.

HANDOUTS

Discuss with lecturer

If a handout is required, you should clarify the following aspects with your lecturer in advance:

- Purpose of the handout, e.g.:
 - To support the content of the presentation
 - Teaching aid
 - Reminder for the listeners

- Content of the handout, e.g.:
 - Structure and core contents of the presentation
 - Key terms, keywords, names, technical terms, etc.
 - Important data, statistics, graphs, diagrams, etc.
 - Longer text excerpts/quotes to read
 - Literature references
- When will it be needed (as a rule, you should at least give it to your lecturer before the presentation)

The KISS principle also applies for the handout (see above): Keep the handout as short and concise as possible!

 Tip for integrating the handout into your presentation: Distribute the handout right at the beginning, briefly explain what information can be found on it and mention that it will be referred to if necessary.

SCRIPT

In addition to the handout for your audience, you might want to consider methods to help you remember your presentation.

One option is using physical notes such as index cards or lecture notes. If you are using PowerPoint and have the necessary technical equipment in the presentation room, you can also make notes in the presentation and display them later during the presentation in the presenter view.

• Important: Design your presentation in such a way that you can still deliver it if you have a technical problem.

THE PRESENTATION

PRACTISING THE PRESENTATION

You should pay attention to the following when practising your presentation:

- Hold your presentation at least twice beforehand, preferably in front of one or two supportive persons
- Pay attention to verbalisation: Use simple, clear, unambiguous sentences
- Pay attention to transitions (important!)
- For presentations in a foreign language: Look up correct pronunciation
- Pay attention to the length of the presentation (use stopwatch)

• It is better to plan the presentation a few minutes shorter than you actually have time for (often something unforeseen will come up and interrupt you).

CHECK ROOM AND TECHNICAL EQUIPMENT

At least one week before the presentation you should familiarise yourself with the room where your presentation will be held and answer the following questions:

- What technical equipment does the room have (e.g. computer, projector, flipchart ...)? Is there anything else that needs to be organised?
- Is the software I used to prepare my presentation compatible with the software on the installed computer? (Warning: Watch out for OpenOffice compatibility with PowerPoint!)

- Is there a pointer or laser pointer?

• If possible, test how your PowerPoint presentation looks on the wall in the lecture theatre (Are the colours distorted? Is the font legible? etc.)..

BEFORE THE PRESENTATION

On the day of the presentation you should ask yourself:

Have I remembered ...

- my index cards/lecture notes?
- to put the PowerPoint presentation on my USB stick? (Bring a backup even if you are using your own computer or have already sent the presentation to your lecturers)
- to test whether the PowerPoint presentation runs on the available equipment and is displayed correctly?
- made a backup of my slides (e.g. as a PDF file) and brought it with me?
- to copy the right number of handouts?
- any other materials or aids I need for my presentation?
- something to drink?
- a watch/clock?

• Get to the room a little earlier than necessary so that you can prepare yourself for the presentation in peace and quiet (e.g. switch on computer, set up equipment, prepare handouts, write on board ...).

DURING THE PRESENTATION

Be aware of the following points while you are presenting as this will affect how the audience perceives you:

- Your position in the room, e.g.:
 - Moving freely, standing behind the lectern, sitting
- Presentation style, e.g.:
 - · Free presentation instead of just reading
 - Finding the right speaking volume
 - Talk slowly, clearly and unambiguously (even when time is short!)
 - Make breaks in your speech
 - Breathe instead of »Um«
 - Pay attention to (eye) contact with the entire audience (not only with lecturers)
 - Body language: Directed at all, calm, do not fidget with arms or legs
- Tips if you're uncertain/nervous, e.g:
 - · Memorise the first sentences of the presentation
 - · Have index cards/lecture notes handy
 - Reduce tension by moving (but do not fidget), alternatively hold on to the lectern or sit down
 - Drink something during the presentation, take a short (speaking) break
 - · Look for friendly faces in the audience and speak to them especially
- Time:
 - Think about spontaneous possibilities for shortening your presentation in advance in case you run out of time due to unforeseen questions, discussions, etc.
 - Keep an eye on the clock
- Questions from the audience:

- If the lecturer usually interrupts presentations with questions, prepare yourself for this in advance
- Consider whether interim questions and comprehension questions should be asked during the presentation or only at the end, and inform the audience at the beginning of the lecture
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- Follow your presentation with a pencil and note at what point you were interrupted. In some types of presentations (e.g. presentation about your final thesis in a colloquium) it can also be useful to note down thoughts or suggestions from the audience and use them later.

STUDY AND CAREER GOALS

An independent career focus is essential for students. Clarify your professional goals early on and make educated choices about what you study! This usually leads to an increased motivation to study and makes it easier for you to start your professional life later.

WAYS TO IDENTIFY YOUR GOALS

Choosing a subject to study is the first step on your professional path. However, in most subject areas there are diverse job profiles and career paths. You should not wait until after you graduate to ask your-self what your career goal you want to follow. Instead, plan how you will start your career during your studies. The following can be helpful:

- Online self-assessments for study and career orientation, e.g.
 - https://meinstudium.fau.de/neigungscheck/
 - http://www.was-studiere-ich.de/
 - https://www.studis-online.de/StudInfo/selbsttests.php
- Researching job descriptions and areas of activity for a variety of professions, e.g.
 - »Berufenet« of the Federal Employment Agency: https://berufenet.arbeitsagentur.de/berufenet/
- Reading job advertisements, e.g.
 - in newspapers such as DIE ZEIT, FAZ, SZ,
 - Online job platforms such as https://www.stepstone.de/, https://jobboerse.arbeitsagentur.de/, http://karriere.unicum.de.
- · Visiting job fairs
- FAU Career Service: https://www.fau.de/studium/im-studium/career-service
- · Gaining initial work experience through internships, working as a student trainee, part-time jobs

• Collecting interesting job advertisements in a folder.

DESIGNING YOUR DEGREE PROGRAMME

In addition to acquiring specialist knowledge, there are numerous opportunities for interdisciplinary and personal further training during your studies.

KEY QUALIFICATIONS

Key qualifications are knowledge and skills that go beyond the discipline you are studying, enabling you to study more effectively and to compete more strongly in the academic world and on the labour market.

In many subjects taking key qualifications is mandatory. Whether you can/must contribute ETCS points from key qualifications to your final degree and if so how many is determined by the degree programme and examination regulations of your (first) subject. Available key qualification courses can be found in UnivIS under »Lehre: Vorlesungsverzeichnis« \rightarrow »Schlüsselqualifikationen«.

Courses can be selected from the following categories:

- Study and Career-related Skills (Kompetenzen für Studium und Beruf)
- Applied Philosophy of Science (Wissenschaftsreflexion)
- General Studies (Allgemeinbildende Studien)
- Key Qualifications from Other Modules (Schlüsselqualifikationen aus den Fächern)
- Language Skills (Fremdspracherwerb)

In addition, FAU's Regional Computer Centre Erlangen (RRZE) offers numerous training options for IT

skills (e.g. image editing, MS Office, creating websites). These can be found in UnivIS under »Lehre: Vorlesungsverzeichnis« \rightarrow »Regionales Rechenzentrum Erlangen/IT-Schulungszentrum«.

Further information on key qualifications can be found on the web page of the Center for Applied Philosophy of Science and Key Qualifications (www.ziwis.fau.de/sq).

Information for students on a teaching degree

In teaching degree programmes, modules related to the teaching subject can be taken as electives. For more information, see the relevant degree programme and examination regulations.

STAYS ABROAD

By spending time abroad during your studies (e.g. studying abroad, internship abroad, language courses) you can improve your foreign language skills and also develop numerous skills such as self-management, taking responsibility and intercultural skills. Furthermore, international experience is a career advantage in many professional fields.

You can find information about »Stays abroad during your studies« on the web pages of the Central Office for International Affairs (RIA): https://www.fau.de/international/wege-ins-ausland/

In addition, the following contact points are available in the faculties:

- Faculty of Humanities, Social Sciences, and Theology: International Office https://www.phil.fau.de/internationales/internationales-buero/
- School of Business and Economics: International Relations Office https://www.wiso.rw.fau.de/international/international-office/
- Faculty of Medicine
 https://www.med.fau.de/international/international-studieren/
- Faculty of Sciences: Office for Internationalisation https://www.nat.fau.de/internationales/referat-fuer-internationalisierung/
- Faculty of Engineering https://www.tf.fau.de/international/

• Plan your stay or study abroad well in advance, as the application deadlines for some programmes can be as much as 18 months before your planned stay.

VOLUNTEERING

Voluntary work and engaging in the university community and beyond also foster (informally) the acquisition of key qualifications. They are also an opportunity to gain initial practical experience if they are related to the profession you want to pursue.

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