

Who should use this handbook?

The handbook is relevant for anyone who provides knowledge

For target groups that differ in many aspects, such as their ...

- talents and previous knowledge,
- expectations and experiences with teaching and lecturers,
- interaction with each other and with lectures and trainers.

The handbook provides guiding questions for your lectures, seminars, workshops.

It illustrates how you can identify and methodically consider possible relevant diversity aspects of your participants.

You will find concrete examples for different teaching formats as well as recommendations from lecturers at the TU Graz.

For those of you who work at Graz University of Technology, all documents including videos with recommendations of colleagues lecturing at TU Graz are available in the Teachcenter.

EN

**Diversity
in Teaching.**

How to make it work

**A Handbook for
Teachers in Technology
& the Natural Sciences**

Why is diversity relevant in teaching?

The interaction with participants and their diversity of perspectives enriches every lecture, workshop or presentation you give.

If you deal with diversity in teaching, you can prepare content for different target groups in a comprehensible way and engage participants with for example different personalities, different previous knowledge, or cultural backgrounds.

What is diversity?

Diversity stands for variety and the conscious perception of differences and commonalities.

Some of these differences and similarities are inherent, e.g. gender, ethnic origin, sexual orientation, physique, or age. Some differences are acquired, e.g. skills, knowledge, understanding of technology. Other differences are contextual, such as mobility needs in the home or work environment, social and economic background, lifestyle, family care responsibilities, expectations regarding a technical product.

EN

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**A Handbook for
Teachers in Technology
& the Natural Sciences**

Imprint

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What contribution does this handbook make *to your teaching?*

Teaching at the university means creating good **learning conditions** and **diverse opportunities for participation** for all students, regardless of their gender, educational background, or nationality. This makes an important contribution to promoting **equal opportunities** for all students and to supporting their talents. At first glance, it can seem as though teachers will need to do more work – for example, when content is adapted and new methods are used. However, not only students, but also teachers benefit from **flexible learning formats** and **productive exchange** with each other.

The handbook contains **guiding questions** that encourage reflection and **specific suggestions** on how the diversity of students can enrich your teaching (e.g., the design and selection of content, methods and materials, the communication between teacher and students, or ways of dealing with given framework conditions). “**Typical teaching situations**” are also presented. **Teachers share their experiences in videos**, and quotes appear in the brochure with smart links that guide you to further information. In addition, you can also sign up for the **TeachCenter course** “Diversity in Teaching”.
<https://tc.tugraz.at/main/course/view.php?id=1904>

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► Office for Gender Equality and Equal Opportunity

<https://www.tugraz.at/en/tu-graz/organisational-structure/service-departments-and-staff-units/office-for-gender-equality-and-equal-opportunity/>

Provides information about equal opportunities, equality, and diversity, as well as individual counselling services for researchers and lecturers at TU Graz regarding diversity integration and gender aspects.

► Accessible Learning

<https://www.tugraz.at/en/studying-and-teaching/studying-at-tu-graz/prospective-students/accessible-learning/>

Provides support for students and teachers on issues related to the inclusion of students with a disability or a chronic illness.

► Vice Rector for Academic Affairs

vr-lehre@tugraz.at

Contact if you have specific questions about the statutes on study law, general questions about teaching, or questions about the Teaching Handbook

► Educational Technologies and Services (LLT)

<https://www.tugraz.at/en/oe/lehr-und-lerntechnologien/home/>

Here, you can get more information about technologies such as the TeachCenter, iMooX, and TUBE. You can also get advice about how to use media for educational purposes, avoid violating the copyright law, and using open educational resources (OER), as well as all forms of virtual and media-supported teaching.

► Languages, Key Competencies and In-House Training (SSIW)

<https://www.tugraz.at/en/tu-graz/organisational-structure/service-departments-and-staff-units/languages-key-competencies-and-in-house-training/>

At this service department, you can receive further training on didactics, attend workshops on “Teaching in English”, and get training to improve “intercultural competence”.

1 Teachers & Students



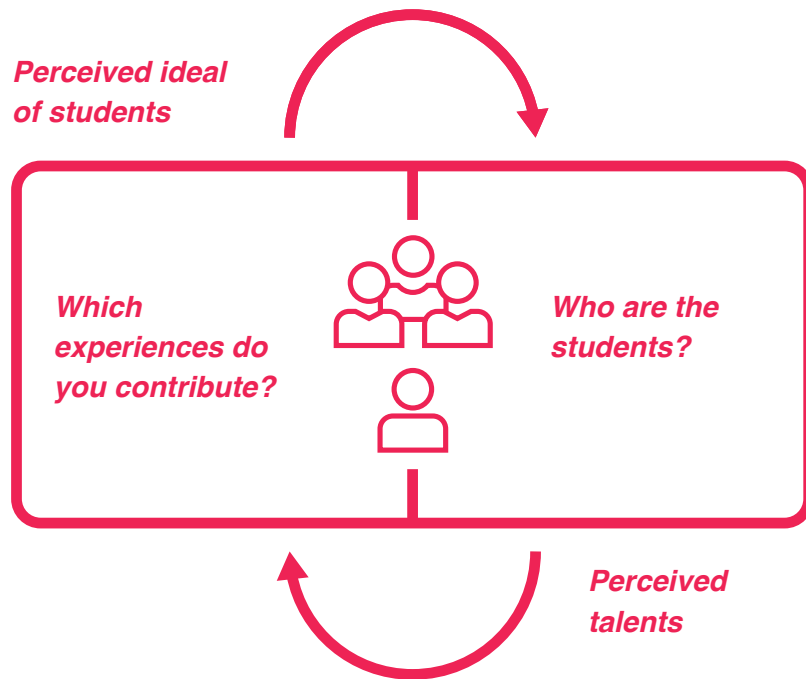
Culture and experiences influence how we learn and teach effectively. Diversity encompasses all aspects that students and teachers bring to the learning process.

What experiences and qualities do you bring to teaching?

- What was **your** favourite way to learn?
- Who are your **role models** in teaching? What has particularly impressed you about them?
- Which **methods** do you find particularly easy to work with?
- How might students **perceive** you?

What influence do your personal experiences and role models have on your teaching?

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What might the ideal good student(s) look like?

- Which students attract **your particular attention** and which attract less?
- What **qualities** particularly attract your attention?
- Have students already been able to surprise you with **unexpected achievements**?
- Which student **behaviours** can you deal with effectively?
- Which student **behaviours** present you with challenges?

How might your perceived ideal of students affect the interaction and the performance?

Handwriting practice area with 20 horizontal lines of dots.

"We look at the registration information, for example: What educational background is present, what language background is present, the gender. [...] That provides a very good basis for trying to put together individual groups."

www.tugraz.at/go/Stocker_Diversität

What do you know about the composition of your students and how might this affect the teaching?

- What is known about **culture, language skills, gender** and **age**?
- Do students differ in terms of their **education** or prior **knowledge**?
- Are there students with **special burdens**, for example, due to family or work?
- Are students with **learning difficulties** or **disabilities** present?
- Might certain students perceive others with **prejudice**, for example, because of their origin, education, culture, age, or gender?

How can you find out more about the diversity of your students if needed?

Handwriting practice area with 20 horizontal lines of dots.

1 Teachers & Students



Suggestions to adapt your methods to fit the student diversity

Practical example:

A lecturer begins a course with “As you already know ...”. Subsequently, the lecturer uses technical terms and definitions, assuming that these are part of an essential foundation. As a result, it becomes clear that some participants could not follow the content.

Take note of the prior knowledge that students bring with them

Depending on the type of school, the subject specialisations differ, and the basic education may have been completed some time ago (e.g. when entering the degree programme as a second education).

Provide students with opportunities to review and acquire basic knowledge

Draw their attention to basic textbooks with content that you consider to be essential prerequisite knowledge, and use introductory tests from universities or questions that you have devised.

Get an overview of your participants

You can gather information about the students, for example, by referring to their matriculation numbers or checking the statistics from TU Graz [1]:

- Stage in the degree programme
- Age of the participants
- International students

Be careful with first names, as they are not always indicative of the gender in a cultural context. For example, the first name *Andrea* is male in Italian.

Use questionnaires where necessary

For lectures or events with many participants, you can use questionnaires to collect information or assess the expectations ahead of time. This is also possible to do online using *feedbackr*.

Conduct introductions during the first unit

In courses with smaller numbers of participants, it is possible to:

- ▶ Conduct classic rounds of introduction
- ▶ Encourage students seated near one another to first get to know each other and then mutually introduce themselves to the entire group.
- ▶ Carry out living statistics: Define corners or areas in the room as expressions of a characteristic that contributes to diversity, such as prior knowledge of the topic or language skills. Ask students to move to the area of the room that they identify with and talk about this characteristic.

In courses with larger numbers of participants, it is possible to:

- Assign participants to groups and encourage them to introduce themselves within the group; the groups change each session.
- Encourage the participants to introduce themselves to others in the TeachCenter to get to know one other better.

Give students the opportunity to use alternative teaching tools

If students are **recording your lecture** or taking **photos of the black-/whiteboard**, this may indicate that the pace of the lecture is too fast. Your students, therefore, may need more time or additional materials to absorb the content at their own pace.

- ▶ If you are concerned that such recordings will be disseminated improperly, make your own recordings and make them available through the TeachCenter [2].
- ▶ Students with chronic illnesses or special needs may also need additional support. You can contact the Service Point for Accessible Learning for support and resources [3].

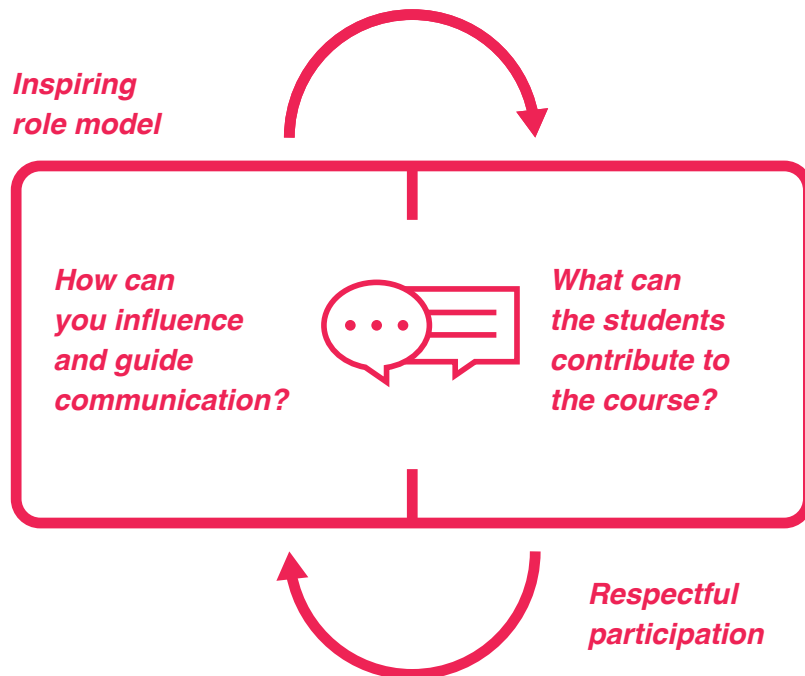
Ensure that the common work goals and personal expectations are clear

- ▶ Especially when carrying out group work, it is important to make sure that the members' expectations and goals are clearly understood to avoid disappointments.
- ▶ What do I personally want to achieve in the course? Do I want to fully commit to working on the topic or do I simply want to get a good grade?
- ▶ Do I have other commitments that demand a lot of my time?
- ▶ What other work styles fit best with my own? These might include, for example, advanced planning, creative, or spontaneous styles.

2 Communication



Students can learn a lot from you about communication and fair cooperation. Using diverse interactive teaching styles can make it easier for you to teach and motivate students.



How can all students follow the communication in your course?

- ▶ Can all students understand the **technical terms, idioms** and **expressions** used in your course?
- ▶ Are students with **special needs** present? For example, you can support **hearing-impaired students** by speaking loudly, slowly and clearly or avoiding the use of backlighting.
- ▶ Can you use examples to **refer to the students' experiences**?

***Do you use spoken and written language consciously
and do you also pay attention to gender-sensitive wording?***

Do all students have the chance to contribute equally?

- Are **women and men addressed equally** in the course?
- Are some students **particularly dominant** in the classroom as compared to others?
- Do some students **interrupt** others?
- Are everyone's contributions **equally appreciated**?

How can you modify your wording, explanations and examples to increase accessibility?

“It’s about making course materials as accessible as possible.”

www.tugraz.at/go/KrottmayerMandl Barrierearm

“The students give each other feedback. I’ve already noticed the following: [...] They have this mutual understanding, and they want to help each other so that the project is better by the end of the course, i.e. the feedback is very constructive and often highly detailed. We [as teachers] couldn't give this feedback in such detail in such a large course.”

www.tugraz.at/go/Pirker Feedback

What rules can be jointly established regarding discussion and feedback?

- › How can you involve students who **do not speak German as a native language** in the discussion?
- › What **boundaries regarding discriminating or defamatory language** need to be clearly set?
- › How do students respond to **feedback**?
- › How can the **different effects of feedback** be reflected upon?
- › How can you get useful feedback that helps you to **further develop your teaching**?

How can you help to make sure that everyone gets the chance to be involved, regardless of their gender, culture, etc.?

2 Communication



Suggestions to promote interaction in the course

Practical example

A teacher who wants to encourage women to participate in the course asks a person in the full lecture hall “And what do you say to this as a woman?” The response of the person being asked is embarrassed silence, and the other students start to mumble and giggle.

Avoid singling out individuals

Singling out people on the basis of a group affiliation (gender, migration background, age, etc.), e.g. by saying “What do you say to this as a woman/ man, person from country XY, ...”?), is inappropriate and can lead to disruptions in the course.

Be aware that not all students can understand you easily and equally

This may be due to language barriers or the individual’s special needs. You can support these students by speaking in short, complete sentences or by introducing strategic pauses into your speech. For students who lip-read, it is important that your face can be seen clearly (e.g. lighting).

Encourage active participation in large courses

The electronic system *feedbackr* – or alternatively a voting system with coloured cards – can be helpful here, as it can be used to get the students’ attention if it is used several times during the course session. The system encourages the students to work through the content immediately and gives the teacher feedback regarding what has been understood and where further clarification is still needed.

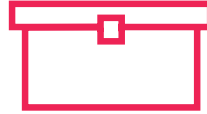
“I had a feedbackr channel open the whole semester where they [the students] could ask questions or submit feedback. I actually always talked about these at the beginning of the lecture to bring everyone up to speed and then we would discuss them.”

www.tugraz.at/go/Kernbichler_feedbackr

Have students think about and discuss questions together

- ▶ In a buzz group or think-pair-share conversation activity, the students talk briefly in pairs. They write down their answers, present them briefly upon request, or hand them in (anonymously) [4].
- ▶ Using the fishbowl strategy, a small group sits in a circle in the middle of the room and discusses a topic while the other participants sit in a large circle around this smaller circle and listen. The outer participants can contribute to the discussion by moving to sit briefly on a free chair in the inner circle.

3 Methods & Materials



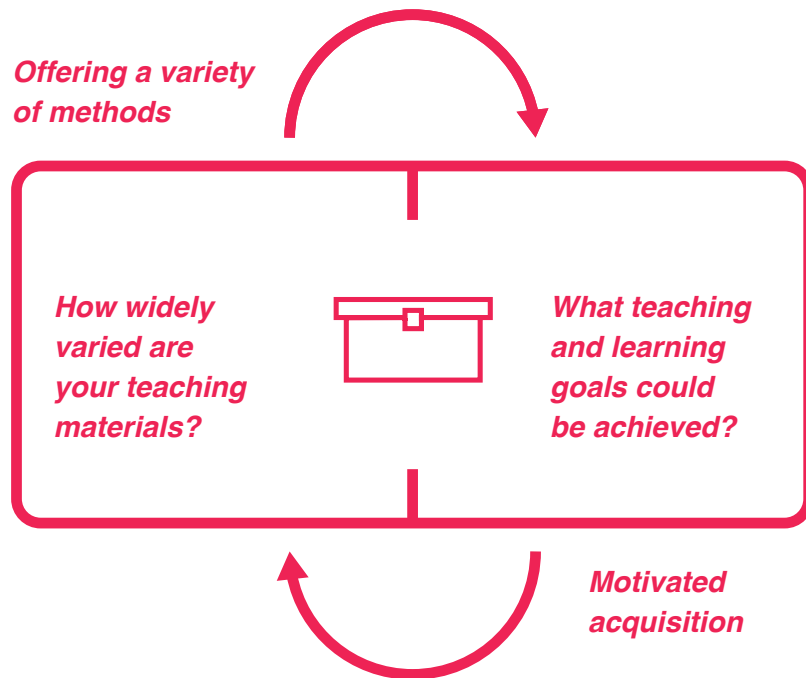
Content can be taught in very different ways. The students' contributions can also be made in a variety of ways. Methods and materials provide diversity.

How can different teaching and testing methods be used within the course?

- How can students **actively contribute** to the course?
- How can students be encouraged to take on **different roles and functions in group work**?
- How can **reticent students be encouraged** to give presentations and lead working groups or workshops?
- Can different perspectives be addressed in teamwork and presentations by **creating specific group compositions**?
- Are there ways to take into account the **different levels of prior knowledge**, and how detailed should instructions be to achieve good results?

Which methods can be used effectively for the number and diversity of students?

Handwriting practice area with 10 rows of dotted lines for text entry.



“One of my colleagues says that his exam results have improved since he started doing this [using videos in courses].”

www.tugraz.at/go/Kernbichler_Videos

What different methods can you use to design teaching materials?

- ▶ Which teaching materials appeal to you personally and why?
- ▶ How can you make **scripts and presentations** appealing?
- ▶ Are there **guidelines and templates** for the linguistic and visual design?
- ▶ Is it possible to make it easier to see how **men and women participate and perform in a diversity of ways** in the subject area?
- ▶ Is the material also available **electronically**?
- ▶ Which **platforms** are in use? Do all students have equal access to these?
- ▶ What **methods** can be used to make learning materials and methods more **accessible**?

Which materials do you want to use, and how do you want to design the materials?

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“Some have received their previous education from a technical school, a technical college, and some come from a classic secondary school (i.e. the previous education is relatively broad). Our goal, of course, is to bring everyone up to speed within the first two semesters, so that all of the students have approximately the same level of knowledge.”

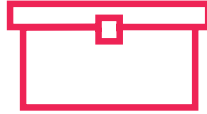
www.tugraz.at/go/Stocker_Vorbildung

How can you deal with the fact that the students have different levels of prior knowledge?

- ▶ Is there any content that will be difficult for students to understand if they have little prior knowledge?
- ▶ What questions motivate students with intermediate levels of knowledge?
- ▶ Which references to literature and research papers inspire advanced learners?

How do you want to differentiate the teaching content, examples, and reflection questions?

3 Methods & Materials



Suggestions for how to design methods and materials

Practical example:

A teacher is surprised when she sees the poor examination results from her course. She has already made the content available in the form of a detailed script at the beginning of the semester and regularly asks the students in the lecture whether they have understood everything. She notices that the students are not particularly attentive and sometimes seem bored.

Make sure to use a variety of methods and materials

- Supplement your presentations with oral and written contributions from the students or short games.
- Supplement presence teaching with online teaching phases. “Blended learning” concepts are particularly worthwhile to use if the form and content remain the same over a period of several semesters [12], [13].
- If possible, provide all supporting documents before the course sessions begin.

“How do you learn to work together when you actually are familiar with and use completely different tools [...] and completely different working methods.”

www.tugraz.at/go/Pirker_Interdisziplinarität

Use the flipped (or inverted) classroom

In this method, students prepare for a teaching unit independently (by referring to videos, books, scripts, or online courses [14]). In the presence-teaching phase, students carry out group work, perform in-depth tasks, and discuss the results of these tasks. It is worth investing extra effort when preparing such a class for the first time, as the same content does not have to be presented every semester and, instead, the teacher can focus on consolidating the content:

- It is essential to provide clearly structured content and clear timelines to get good results.
- Support students during the self-regulated learning phases by encouraging them to communicate with one another and to keep in touch with you [15].

Extend this concept by using Just in Time Teaching (JiTT)

The students work on the material in a self-regulated learning phase and also work on questions before the course sessions. The teachers view the results shortly beforehand and adjust the content of the unit (“just-in-time”). This makes it possible for teachers to respond specifically to challenges or common mistakes made by the students. [16].

Note how groups are composed according to personal characteristics

- When students form groups on their own, make sure to support the integration of people who are new, such as exchange students [17].
- Students have a natural tendency to form homogeneous groups, as common characteristics simplify the interactions among the group members (e.g. gender or experiences).
- You can increase the self-confidence of people who have similar experiences and knowledge by having them work on tasks in homogeneous groups. In this case, make sure to introduce sufficient time for reflection, so that stereotypes are reduced rather than reinforced.
- Ensure that roles such as the person who gives a presentation, takes the minutes of a meeting, or leads the group are rotated, so that each group member has the chance to gain different perspectives.

Learn how to use the strengths of heterogeneous groups

Mixed, heterogeneous groups are considered as more productive and innovative, but they can also be problematic due to communication difficulties, lower stability, and even higher stress.

Mixed teams must first develop and agree upon a working and conflict culture.

As a teacher, therefore, you should guide group processes and design the tasks so that the students can develop different points of view.

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"Colour blindness can be easily addressed by making very minor changes, if you just think about [and choose] the colour choice of a menu in the game or the environment in the game a bit more carefully."

www.tugraz.at/go/Pirker_Gaming

Design scripts and presentations in appealing and accessible ways

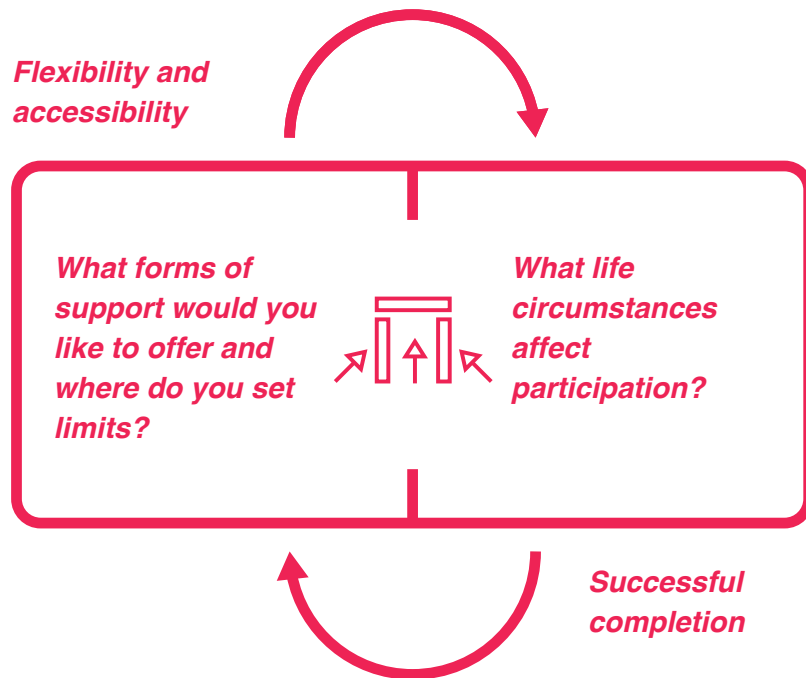
- ▶ Use left-aligned text and an easily readable font (e.g. Calibri or Verdana) [18].
- ▶ Use clearly structured, numbered chapters and meaningful captions to describe the contents of graphs, figures, and tables in the text
- ▶ Make sure that the videos are subtitled wherever possible
- ▶ Ensure that slides and presentations are easily readable and that the text and figures are high-contrast, so that they can be seen even in the back rows. Avoid red-green transitions for people with red-green visual impairments.

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4 Framework Conditions



It helps everyone to receive information about the organisation and technology ahead of time. It is good to encourage the students and to openly address special needs for support.



What expectations and assessment criteria do you need to communicate?

- ▶ What kind of **behaviour** and what kind of **communication** do you expect in your course?
- ▶ How does **your communication** and **feedback** reach the students?
- ▶ **What teaching content is delivered** and what **prior knowledge** is required?
- ▶ How are **exams and examinations** prepared and how are they conducted?
- ▶ **What assessment criteria and what grading key** will be used?
- ▶ How are the guidelines of **good scientific practice** taught?
- ▶ How do you plan to integrate **diversity and gender aspects** into your contributions?
- ▶ What **supporting materials** will you reference?

How will you communicate expectations and assessment criteria?

Can you address any particular challenges that students may have?

- Can the **attendance** be flexibly adjusted?
- Are extended **preparation times for assignments** possible?
- Can you **give extra time** during presentations?
- Do you want to allow **different forms of examination**?
- Can **substitute performance** items be useful, for example for field trips or internships?
- To what extent can you accept the use of **technical aids**, such as interpreters or computers?
- Do **students with special needs** have enough opportunities to contact you?

What opportunities to receive support from the university do you want to point out?

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"If they need to hand in the result of a discussion, but do not want to communicate in a group, they can conduct the discussion alone with the professor."

www.tugraz.at/go/KrottmayerMandl_Abgabe

Do the framework conditions allow all students to participate equally?

- ▶ Is the classroom accessible, is this access **barrier-free**, and is there sufficient space?
- ▶ Who can participate in **excursions and projects**?
- ▶ Are scripts, bibliographies, and presentation topics **available in a timely and accessible manner**?
- ▶ **What can be done when digital teaching methods need to be used?**
 - ▶ Do all students have access to sufficient infrastructure, such as adequate study space or office equipment?
 - ▶ How can the interaction be lively and engaging, even without meeting in person?

When, how, where, and for how long do you want to be available to your students? How can you communicate both your accessibility and your boundaries clearly?

4 Framework Conditions



Suggestions for creating barrier-free framework conditions

Practical example

Immediately after the interim presentation of group work, the teacher provides feedback primarily on the content and presentation style in order to help the students improve by the end of the semester. One group of exchange students is very insecure after the intensive feedback session and subsequently no longer participates in discussions.

“Of course, if you know that a problem exists, you can take a completely different approach, because then you can look for an individual solution.”

www.tugraz.at/go/Kernbichler_Individualität

Note that feedback is often misunderstood

There are huge cultural variations in how feedback is given and understood. For example, in more direct cultures, such as the Netherlands or France, critiques are given openly, whereas in other cultures, such as Asia, critiques are implied indirectly, and the positive aspects are emphasised. Therefore, feedback can be very easily misunderstood.

The students' needs for praise and recognition can also vary greatly [19]. In order to provide optimal support for students during the learning process, it is helpful if you clarify in advance:

- ▶ How to formulate feedback,
- ▶ the purpose of the feedback (e.g. suggestions for improvement, an explanation of the final grade),
- ▶ what students experience as praise and criticism, and
- ▶ that only the content and never the person should be critiqued (clarify critical points in person, if necessary). In this way, you enable everyone to save face.

Familiarise yourself with the different forms of disabilities

Students can have a variety of health problems that hinder their learning progress. TU Graz has prepared its own brochure specifically on this subject [20].

Provide students with a written syllabus in advance

Students can more easily decide to participate if they are given the following information:

- Learning objectives and content
- Required prior knowledge and effort
- Procedure and methods
- Expected performance items and assessment criteria

Familiarise students with the assessment criteria

If students present many arguments during the course, this should be reflected in the examination by including open questions and discussions. If you award only one grade for group work, still make sure that the individual contributions made are clearly visible when performing the assessment.

Offer different forms of examination

- Active contributions can be complemented by submitting written reports or a reflection.
- Exam forms can be adapted for students with particular needs, such as replacing the written exam with an oral exam, by providing more time, or by allowing breaks or the use of technical aids [21].
- Communicate with the students to let them know the conditions under which you are willing to consider certain challenges (e.g. care responsibilities, illnesses).

“Students with chronic illnesses and disabilities really need a place they can turn to at TU Graz.”

www.tugraz.at/go/KrottmayrMandl_Servicestelle

Address the specific challenges presented by digital teaching

In a virtual environment, the possibilities to perceive the needs of other people are severely limited, e.g. in terms of body language and voice. This can quickly lead to stress, reduced attention spans, and misunderstandings.

Therefore, plan enough time,

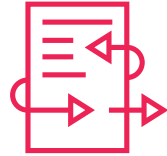
- for students with different working styles to adjust to the digital environment.
- for frequent, short screen breaks to keep the students' attention.
- for more frequent, smaller interim reviews of material.
- for students to meet in virtual group rooms and for you to answer questions in chat rooms.
- for making recordings and documents in the preparation and follow-up phases.

Respect the students' privacy and do not oblige them to activate the camera during online meetings. Instead, make the participants aware that they can show only their name or a virtual background.

Make students aware of supportive materials and services

- Materials that contain rules for preparing citations when writing seminar papers, guidelines for gender-sensitive writing, corporate wording, etc.
- Contact persons and support services at TU Graz.

5 Research & Teaching Content



Using various theories, models, and variables leads to different results; diversity in the team leads to innovative insights.

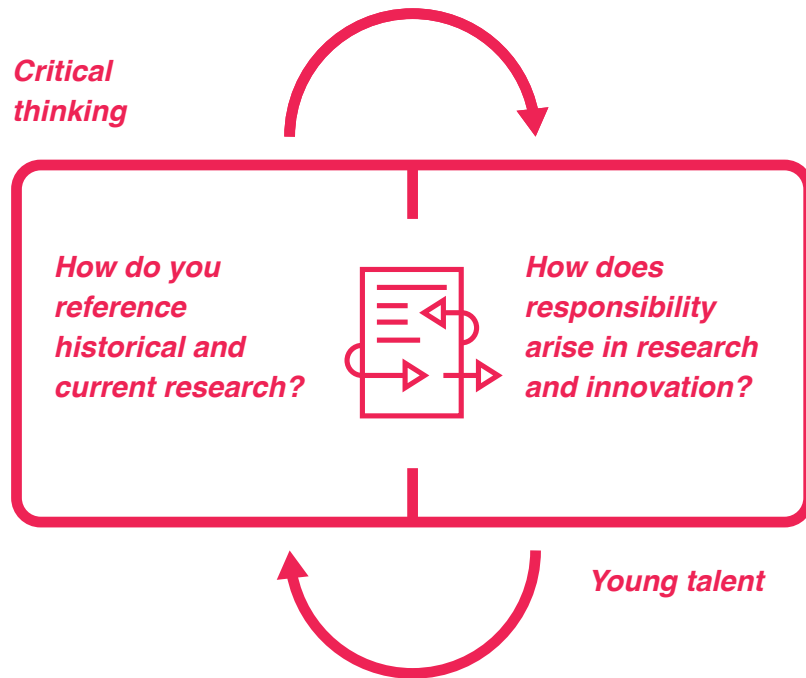
How can different theories and research perspectives be addressed in teaching?

- Which different schools of thought and traditions are relevant in your field?
- Are certain groups of people, regions, or application contexts neglected?
- What role did women play in the history of the field?
- What is the ratio of female to male students, researchers and teachers at the university, and in your field?
- What qualities are needed to pursue a career in your field? Do these ideals change or do they remain constant? Do unconventional careers also exist?

Can “traditions” and theories be used for discourse in teaching?

What are some examples that demonstrate the social relevance of your research?

Handwriting practice lines consisting of multiple rows of dashed lines for text entry.



What does your research refer to?

- ▶ How different are the stakeholders who use or are affected by your research, for example, in the development of technical equipment?
- ▶ To what extent do research results depend on the model chosen or on the way variables are defined?
- ▶ Are your research subjects cells, animals, or humans? How are factors such as gender or age taken into account?
- ▶ Are there researchers who explicitly deal with diversity in the discipline and who might be available as guest lecturers?

What opportunities do you have to critically reflect on diversity issues with your students?

Show the historical developments in the field

In this way, students learn the conditions under which the different theories and schools of thought developed, and which aspects were considered relevant in other eras but were discarded in favour of other theories.

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“The course on gender and diversity for researchers: I can highly recommend that if you would like to personally learn more about the topic, learn how big the topic of diversity actually is, and find out how much the topic of gender is interconnected with others in our society. And if you are aware of it yourself and if you deal with it [...], you can certainly use this personal knowledge as a basis and pass it on to the students.”

www.tugraz.at/go/Stocker_Lehrgang

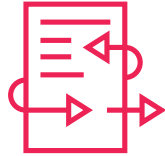
Reflect on people who are more likely to be attributed with excellence in your subject area

During this reflection process, consider universities, specific schools of thought, or the gender of individuals.

Share information about scientists and their biographies with the students. Even mathematical formulas were developed by people in a historical context. For example, the British mathematician Ada Lovelace (1815-1852) is considered as the world's first female programmer [22].

- Write out first names in full in order to make the contributions of men and women more clearly visible [23].

5 Research & Teaching Content



Suggestions for how to integrate research and teaching content

Practical example

As part of a course, students developed a software programme that should be easy for end users to use. In the final presentation, the students mention “the user”, but then enthusiastically digress by describing the technical details and intricacies of their programme.

Analyse the diversity of target groups in applied research

The personal background shapes the approach we take to carry out tasks and solve problems. Therefore, we also tend to develop products using the “I-Methodology” and unintentionally neglect the interests and abilities of other people [24].

- Ask questions about the potential users, how they differ, and what requirements might arise from these considerations.
- Draw attention to the methods that can be used to integrate the users’ perspectives into the development process, for example, by carrying out “usability tests” or applying “participatory design” methods [25], [26].

“In the development phase, you can take into account who the players really are and the fact that the players can also be completely diverse.”

www.tugraz.at/go/Pirker_Beruecksichtigung

Encourage critical reflection at an early stage

Have students test hypotheses about the learning topic in small groups to show that you can get different results by taking different approaches. Reflect on diversity and gender aspects by referring to specific studies. Draw the students’ attention to which research designs yielded which results and ask them if it would also be possible to interpret the results in alternative ways.

Discuss the social relevance of your research

If possible, refer to and illustrate practical applications.

- You can look at technical solutions from economic, ecological, historical, social, or ethical perspectives. For example, regarding the toxicity levels of chemicals, the different exposures of women and men, children and adults, or people in certain occupations are hardly taken into account.
- Practical examples should reflect different aspects of daily life and consciously contradict stereotypical ideas. Note what experiences and contextual knowledge are required to understand the example.
- In fundamental subjects, attention can be drawn to who will subsequently use the results or how the research will be funded.

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