



# Digital Teaching - Planning, Designing, Implementing

Handout for Lecturers  
at the University of Freiburg

Updated: May 20, 2020

University IT Services, Department E-Learning

## Digital Teaching - Planning, Designing Implementing

Dear lecturers,

The current corona pandemic presents us with the great challenge of having to teach and train largely without attendance courses this summer term. It is therefore essential to make intensive use of the possibilities of distance and digital teaching and learning so that we can enable our students to study without interruption. We, the e-learning department of the University IT Services, support you in preparing this extraordinary semester, so that you can convert your teaching from face-to-face to online teaching as smoothly as possible. Since mid-March, we have put together a wide range of services in the form of live webinars, support by e-mail and telephone, as well as a comprehensive "Digital Teaching Toolbox" on the existing technical platforms and methodological-didactic suggestions.

The recordings of the webinars, as well as access to the Digital Teaching Toolbox, can be found at <https://ilias.uni-freiburg.de/loslegen>

With this handbook, we would like to provide you with an additional, summarizing guide for the available technical tools and for the implementation of specific teaching scenarios. We are very pleased with the high level of commitment of all lecturers and hope that this will help you to master the challenges ahead.

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## I. Current Recommendations for the Summer Semester 2020

Prof. Dr. J. Besters-Dilger (Vice Rector for Teaching) and Prof. Dr. G. Schneider (Vice Rector for Digital Transformation) sent the following recommendations to all university employees by e-mail at the end of March:

- We therefore recommend to focus on asynchronous teaching and learning – i.e. lecture contents should be recorded earlier and made available later via the learning platform ILIAS along with further literature recommendations and learning tasks.
- Broadcasting all lectures and seminars "live" to the students sitting in front of their screens will not work across the board. Synchronous teaching scenarios via video conferencing require a high reliability of the technical infrastructure. Due to the current general situation, this depends very much on the private conditions for lecturers and students (home office, available DSL connections, etc.), especially for courses with many participants. Live scenarios should be limited to the necessary teaching scenarios, e.g. seminars and tutorials with small numbers of participants.
- In the interest of our students, please use the tools and platforms for digital teaching provided at our university. It would be very confusing for our students if, in these stressful times, they also had to deal with a plethora of similar tools or different access modalities and ad hoc solutions. The existing technical infrastructure is currently being intensively expanded and adapted to the increased demand in teaching through the acquisition of external solutions.
- Despite Corona, the laws on data protection continue to apply and must be observed. IT security will face major challenges, as we cannot rule out that cyber criminals will take advantage of the greatly increased possibilities offered by IT.

Up-to-date information is available from the Vice-Rectorate for Studies and Teaching and from the University IT Services:

o An FAQ on studying & teaching in the summer semester can be found at <https://www.uni-freiburg.de/universitaet/corona/studium-und-lehre>

o Homepage of the University IT Services on technical developments: <http://www.rz.uni-freiburg.de/edvcorona>

## II. Going Digital! - Conducting your Course

### Technical requirements - Preparing the Workplace for Digital Teaching

Before you start creating digital content, you should ensure that your technical equipment at your workplace or home office is adequately prepared. All you need now is a laptop with an integrated camera and microphone to add audio tracks (ie. your spoken comments) to slide presentations (e.g. PowerPoint or PDF), record screencasts or conduct live webinars via video conferencing. With a mid-range smartphone or tablet you can now produce sufficiently good video and audio recordings.

Nevertheless, there are a few recommendations that can help you to achieve the best possible recording results in terms of image and sound with the least possible effort. As with all e-learning projects, the "KISS" rule applies right from the start: "Keep it short and simple".

Always make your recordings rather short. For example, instead of a 90-minute presentation with 70 slides, create shorter units of, say, 10-15 minutes. Remember that (almost) no film, no matter how simple, is made in one go and without errors in the process. Plan recordings or live webinars in the smallest blocks and video units. Provide the students with additional learning tasks via the ILIAS learning platform to consolidate the content presented in the video through self-study. Below you will find some suggestions for the technical equipment:

#### 1. Audio - e.g. Adding Audio Tracks to PowerPoint Slides; Creating Podcasts

Good audio quality is often more important than good video quality. Blurred images are in most cases easier to overcome than background noises such as hissing, passing cars or loud breathing in the audio track of the recordings. Therefore, we recommend that you always use **an external microphone** positioned close to your body or mouth. **A simple headset with a microphone** (preferably with USB connection) is usually sufficient for this.

- Please also make sure to choose a recording location where there is as little noise as possible. This includes muting your phone and all notifications on your device.
- If you use a table microphone, **always make sure to keep the same distance from the microphone when speaking**. If possible, avoid self-generated noises near the microphone, such as "loud" movements or typing on the keyboard or mouse.
- If you need to transmit sound yourself, e.g. because you want to include another pre-produced video in your video recording and comment on it, **please use headphones and not loudspeakers**, as this can cause noises such as echoes, reverberation or feedback. This is especially true when moderating live sessions via video conference.
- **Before each recording, please check that you have selected the correct microphone** in the recording software or in the settings for the recording devices in the operating system, (laptops often have a built-in microphone, which usually gives much worse results than e.g. a headset). The easiest way to check this is to move away from the laptop / monitor and then rustle slightly directly at the microphone, paying attention to the recording level.

We have good experience with headset models from Logitech H340 or Blackwire C320, to name but few. The University IT Services currently offer a small contingent of headsets for rent. If you need them, please contact the e-learning department (see "Support" on the last page).

## 2. Video

Most of the current cameras integrated in laptops, tablets and smartphones now provide very good video images and are usually set automatically so that you do not actually have to change anything. This is especially true when recording slides while sitting in front of the computer or during live video conferences.

However, if you are aiming at even better camera images and want to be a little more flexible when in positioning the camera, we recommend a high-resolution **webcam with USB connection**. We have had good experience with the "Logitech C922" or the "Logitech BCC950" conference cam, for example.

- In general, when taking camera pictures, you should make sure that you position yourself **in front of a bright, calm background, that your image is bright and clear, and that the camera image does not wobble.**
- Please position the camera so that the **lens is at eye level**. If you want to use the integrated webcam of your laptop, please position the laptop **accordingly** and use an external keyboard and mouse. Also make sure that **bright light sources and windows** are behind the camera and **not behind or beside you**.
- If you want to use your smartphone for video recording (e.g. because you only want to record a text and do not need a screen recording), we recommend using a smartphone tripod for correct positioning. You can also achieve optimum sound quality by using an **external smartphone lapel microphone**. Here we have had good experience with the model "Movo LV1", among others.
- When dubbing PowerPoint slides, please ensure that the slide format is 16:9 so that you also generate a video in 16:9 format.

## 3. Recording Programs

The following program has itself for recording and editing audio recordings:

- Audacity (Windows, Mac, Linux): <https://www.audacity.de/>

For the realization of sound recordings of PowerPoint presentations and the recording/sounding of any screen content we recommend the following:

- Audio recordings directly in PPT (from PPT 2010)
- Screenpresso (Windows only)
- Camtasia (Win, Mac)
- Panopto (integrated in ILIAS courses)
- OBS Studio (Linux)

You can find the instructions for the above programs in the Digital Teaching Toolbox on the "Using Video and Authoring Tools" page.

## 4. Format and Quality Settings for Video and Audio Productions

Once you are ready to publish the content, you should decide on the format you plan to use and the quality you want to publish it in. A lot of content is consumed via smartphones, tablets or laptops, so settings beyond 720p or generally medium quality settings are not of much use, but rather cause the files to become much too large, which could potentially overload servers or slow down internet connections.

### Our recommendation for this:

- **Videos in MP4 format (codec h.264)** with medium quality settings (HD/720p/1280x720 pixels) in 16:9 format and
- Record and publish **audio files in MP3 or M4a format** and a **bit rate of 192kbps**
- **Save flat graphics as PNG** or **images as JPEG** and
- **Export documents as PDF**

Before each recording, please check which video quality or picture section you have selected. Make sure that you always select the 16:9 format when recording. This corresponds to the settings 720p (1280x720 pixels) or Full HD 1080p (1650x1080 pixels).

## 5. Internet Connection

When it comes to the required Internet speed, the rule is: the faster, the better. AND: **Use a LAN (cable) connection** rather than a Wi-Fi connection.

- If you want to produce asynchronous teaching formats such as video and audio recordings, the Internet connection only plays a role when uploading to the Internet, e.g. when uploading to the ILIAS learning platform. A stable internet connection is especially important so that uploads are not interrupted.
- For synchronous formats such as webinars or live lectures we recommend an **internet speed of at least 16 Mbit/s as bandwidth** (normal DSL providers usually provide more). If you share the Internet connection with other people, please ask them to avoid data-intensive activities such as video streaming or data uploads to other Internet platforms during the time of the recording/webinar.

## 6. (Internet-)Browser

Especially when working with audio and video on the Internet, the different browsers behave differently. This applies not only to playing pre-produced videos, but also to participating in and controlling browser-based video conferences. In our experience, the browsers "Google Chrome" or the open source alternative "Chromium" are the most stable or least error-prone for such purposes. It is therefore recommended to install one of the two browsers free of charge and to use it at least in a professional context.

Download the open source browser Chromium: <https://chromium.woolyss.com/download/de/>

## 7. University Platforms for the Implementation of Digital Teaching

The following web-based platforms are available for the digital design of your course and for student support at the University of Freiburg:

### ILIAS Learning Platform:

In the ILIAS learning platform you can design the framework of your courses. Here you can store your pre-produced recordings, literature and learning recommendations.

- With the test tool or the time-controlled submission tool, students can process and submit learning tasks.
- Use communication tools such as Forum and LiveChat for asynchronous or synchronous communication with your participants
- Further information on ILIAS can be found in the Digital Teaching Toolbox.

### Recording and Live Webcasts Using Panopto:

- If you would like to hold a “live” lecture with more than 100 participants, it is advisable to deliver the presentation not via video conference but as a live stream with Panopto (WebCast; transmission of slides, sound and, if required, video image).
- The advantage is that the students can listen live, but can only ask questions via chat. This scenario reduces the required bandwidth enormously compared to a video conference with potentially many connected video cameras and can therefore be considered much more reliable.
- Panopto is an independent cloud-based video server that can be used directly via an interface from any ILIAS classroom. The use for lecturers and students is exclusively via ILIAS.
- Further information can be found on the website of the University Library and in the Digital Teaching Toolbox.

### Videoconferencing Tools:

If you need a live video conference for a direct discussion or live presentation to conduct your lecture, seminar or tutorial, you can fall back on different solutions depending on the scenario:

- **Zoom** (group size up to 300 participants): The videoconferencing solution was purchased on April 20 as an external cloud solution to meet the increased demand. Use Zoom if you want to manage a video conference with many participants (> 30 participants or several parallel small groups (e.g. exercise groups and/or tutorials) via video conference.

For further information on zoom, please refer to the pages of the University IT Services.

- **Adobe Connect.** Adobe Connect is a very flexible virtual classroom system that the University of Freiburg has been operating for several years as a locally hosted solution in the University IT Services. Advantage: The creation of live meetings directly via an interface is possible from every ILIAS course. As an in-house videoconferencing solution Adobe Connect is approved by data protection laws for oral exams via videoconferencing, see also the "**Corona Statutes**" of the University. The limiting factor for Adobe Connect are the available licenses: 200 parallel/simultaneous connections are available, making it suitable only for smaller groups (< 20 participants) and oral exams.
- **Open Source solutions Jitsi and BigBlueButton:** The University IT Services has also put two open source videoconferencing solutions into operation to meet the needs of smaller groups of participants (up to 15 participants). Both systems require no installation of additional programs and can be used in the browser.

An overview of the videoconferencing solutions, deployment scenarios and support documents can be found at [https://ilias.uni-freiburg.de/goto.php?target=wiki\\_wpage\\_14560](https://ilias.uni-freiburg.de/goto.php?target=wiki_wpage_14560)

### Videoserver Vimp: Streaming of Pre-Produced Videos with High Data Volume

- Your videos or pre-produced video recordings can quickly reach a high data volume (500 MB and more). It is therefore advisable not to upload these videos directly to the ILIAS learning platform but to the video server "Vimp". Via the streaming server the videos are played back in different quality depending on the end devices retrieving them.
- There is also an interface between the video server Vimp and ILIAS so that videos can be uploaded to the video server via ILIAS, including the setting that only students with access rights are allowed to access the videos on ILIAS.
- More information can be found in the Digital Teaching Toolbox.










## Combining Tools - Implementing Teaching Scenarios Digitally

On the following page you will find a quick overview of how to convert your classic course formats into digital versions using the available tools and platforms. Detailed information on this and on all relevant technical tools in our "Toolbox Digital Teaching", see section III of this guide.


### Teaching Scenario 1 – Large Lecture

- Type of course: hardly any student interaction
- More** than 80 participants



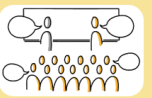
Implementation	Tools
<b>Set up an ILIAS course room</b> <ul style="list-style-type: none"> <li>Copy ILIAS-„Course Template Lecture“ or create your own course in the semester tree.</li> </ul>	<b>1</b> ILIAS 
<b>Asynchronous learning activities</b> <ul style="list-style-type: none"> <li>Prepare video material or PowerPoint slides with sound,</li> <li>Integrate videos directly in ILIAS or via the video portal „Vimp“,</li> <li>Set up Forums, Submission exercises, etc.</li> </ul>	<b>2</b> ILIAS  Vimp 
<b>Optional: Set up and perform Live-Stream</b> <ul style="list-style-type: none"> <li>Create Panopto object in the ILIAS course room.</li> <li>Configure WebCast and activate chat function for participants.</li> </ul>	<b>3</b> Panopto 
<b>Optional: Record Live-Stream</b> <ul style="list-style-type: none"> <li>If desired, create recording (will be automatically provided in ILIAS).</li> </ul>	<b>4</b> Panopto  







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### Teaching Scenario 2 – Small Lecture or Large Seminar

- Type of course: low level of student interaction
- 30 – 80** (or more) participants



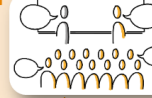
Implementation	Tools
<b>Set up an ILIAS course room</b> <ul style="list-style-type: none"> <li>Copy ILIAS-„Course Template Seminar“ or create your own course in the semester tree.</li> </ul>	<b>1</b> ILIAS 
<b>Asynchronous learning activities</b> <ul style="list-style-type: none"> <li>Prepare video material or PowerPoint slides with sound, Panopto recordings (if necessary)</li> <li>Integrate videos directly in ILIAS or via video portal „Vimp“</li> <li>Set up Forums, Submission Exercises, etc.</li> </ul>	<b>2</b> ILIAS  Panopto  Vimp 
<b>Optional: Live session as video conference</b> <ul style="list-style-type: none"> <li>Set up a Zoom session.</li> <li>In the course room use the ILIAS object "Weblink" to provide access to the zoom session for students.</li> </ul>	<b>3</b> ZOOM  







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### Teaching Scenario 3 – Small Seminar

- Type of course: high level of student interaction
- Less** than 30 participants



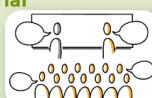
Implementation	Tools
<b>Set up an ILIAS course room</b> <ul style="list-style-type: none"> <li>Copy ILIAS-„Course Template Seminar“ or create your own course in the semester tree.</li> </ul>	<b>1</b> ILIAS 
<b>Asynchronous learning activities</b> <ul style="list-style-type: none"> <li>Prepare video material or PowerPoint slides with sound, Panopto recordings (if necessary).</li> <li>Integrate videos in ILIAS or via video portal „Vimp“.</li> <li>Set up Forums, Submission Exercises, etc.</li> <li>Configure collaborative tools, depending on the selected tool.</li> </ul>	<b>2</b> Panopto  Vimp 
<b>Optional: Set up and perform live session</b> <ul style="list-style-type: none"> <li>Set up session – with Zoom / BigBlueButton.</li> <li>In the course room use the ILIAS object „Weblink“ or „BigBlueButton“ to provide access to the live session for students.</li> </ul>	<b>3</b> ZOOM  Big Blue Button  







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### Teaching Scenario 4 – Practice/Tutorial

- Type of course: high level of student interaction
- Less** than 20 participants; possibly many parallel groups



Implementation	Tools
<b>Set up an ILIAS course room</b> <ul style="list-style-type: none"> <li>Copy ILIAS-„Course Template Seminar“ or create your own course in the semester tree.</li> <li>Provide practice materials &amp; tasks.</li> <li>Define collaborative tools.</li> </ul>	<b>1</b> ILIAS 
<b>Optional: Set up and perform Live Session</b> <ul style="list-style-type: none"> <li>Set up session with appropriate video conferencing tool: Jitsi / BigBlueButton / Zoom.</li> <li>In the course room use the ILIAS object „Weblink“ or „BigBlueButton“ to provide access to the live session for students.</li> </ul>	<b>2</b> ZOOM  JITSI  Big Blue Button 
<b>Follow-up Live Session</b> <ul style="list-style-type: none"> <li>If desired, provide results from live session in the form of new materials in the ILIAS course room.</li> </ul>	<b>3</b> ILIAS  

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### III. Digital Teaching Toolbox

For a deeper understanding of how to design your own teaching with "digital learning resources and tools", we would like to provide you with the new "Digital Teaching Toolbox", which covers various topics in the field of "Digital Teaching". The toolbox is designed to support you in using digital options in teaching and to serve as a reference book for specific questions.

As with any didactic design of a course, the focus is on three steps - planning, design and implementation. You will find the "Digital Teaching Toolbox" on our central learning platform ILIAS under the following link:

<https://www.ilias.uni-freiburg.de/loslegen>



#### Section 1: Designing Digital Teaching Scenarios

Would you like to design your course digitally? If so, there are two questions you should address first:

- Which course format (e.g. lecture, seminar, practice, tutorial, etc.) would you like to explore, and which elements of this format you can implement online?
- Which competences should your participants/students have acquired or enhanced after the course?

In the section "Designing digital teaching scenarios" you will find answers to these questions and can start by planning your semester and course. We will gradually supplement this section with didactic design suggestions and a digital method kit.



## Section 2: Working with the ILIAS Learning Platform

In our second part "Working with the ILIAS learning platform" you will find all important and in-depth information on the central learning platform of the University of Freiburg.

**Intro:** The "central learning platform of the University of Freiburg" is based on the open source software ILIAS, a learning management system (LMS) which is used at many universities and colleges, especially in German speaking countries.

Under the tab: "How does it work?" you can easily find out about the digital tools and options offered by ILIAS. This area is divided into three sections:

**Quick start with ILIAS:** Here you will find course templates for copying, a short manual for downloading (German/English) and the official ILIAS user documentation.

**All about your personal desktop and other important functions in ILIAS:** Here we have compiled all the basic functions provided by the ILIAS learning platform basically offers, regardless of a specific "ILIAS object".

**All about ILIAS objects:** ILIAS offers many different "objects" that have specific properties (e.g. objects for organization, content, communication, assessment and feedback etc.). You recognize these objects by their names "course, group, folder, learning module, test, survey, etc.". In this tab you will find a short description of each ILIAS object, i.e. which properties this object has and for which application scenarios it seems suitable. In addition, you will find tutorials for each object explaining its functionality and handling, often also in video format.



## Section 3: Using Web-Conferencing Systems

Web-based video and conference systems allow several people to meet in virtual space. The number of participants varies from the size of a meeting (3-12 persons), the size of a seminar (approx. 15-30 persons) and the size of a lecture (> 30 - 300 persons).

From a technical point of view, it is important to consider the expected number of participants as a basic requirement when selecting the appropriate technical equipment, as some functions or capacities cannot be covered by every conference system.

Other decisive factors for the success of such a session are the moderation of the web meeting and the decision whether a live stream or a more interactive form of web meeting is the right tool of choice.

In this section you can find out about the various options currently offered by the University of Freiburg and identify the system that suits you best.



## Section 4: Using Video and Authoring Tools

Lecture recordings, videos and multimedia content can be produced and made available in various ways. These range from PowerPoint slides with soundtrack, lecture recordings from the lecture hall to video productions with a smartphone or tablet. Various technical authoring tools are available for the production of these digital learning resources.

- In this section we present various technical options available to you at the University of Freiburg for the production of digital learning resources.
- In addition, you can learn more about about the different possibilities for “embedding” video productions in ILIAS (central learning platform of the University of Freiburg).



## Section 5: Learning to Teach Digitally

As a practical companion and guide for all questions concerning digital teaching, the toolbox contains numerous online tutorials in the form of video tutorials, online modules and PDF handouts, which you can access at any time in the corresponding thematic sections. In order to support you in the planning, design and implementation of your teaching project, the Department of E-Learning, along with the Department of University Didactics, offer a variety of continuing education courses, which you can get to know in this section:

- Participation in current webinars on various topics live at your workplace or home office or access to the recordings of previous webinars.
- Expanding your didactic and technical skills by participating in the training courses and workshop offered by the above-mentioned departments.
- Obtaining the e-learning certificate of the University of Freiburg.



## Section 6: Profiting from Best Practice Examples

There are already numerous lecturers at the University of Freiburg who use digital elements in their teaching. In our section "Profiting from Best Practice" we would like to provide you with a collection of teaching scenarios developed by your colleagues. These can inspire you when planning your own courses or show you didactic possibilities of technical applications that you may not have been aware of before.

## IV. Support Centers

### University IT Services, Department E-Learning

Do you currently have questions about the various possibilities of digital teaching? We would be pleased to help you. You can reach us through the following channels:

- Hotline: 0761-203-4600
- E-mail: [elearning@rz.uni-freiburg.de](mailto:elearning@rz.uni-freiburg.de) or [ilias@rz.uni-freiburg.de](mailto:ilias@rz.uni-freiburg.de)

### Department of University Didactics

You would like to plan the upcoming semester and discuss new didactic possibilities for your course? We would be pleased to help you. You can reach us through the following channels:

- Online consulting: [https://ilias.uni-freiburg.de/goto.php?target=crs\\_1492830](https://ilias.uni-freiburg.de/goto.php?target=crs_1492830)
- Phone: 0761-203-2451
- E-mail: [silke.weiss@hdz.uni-freiburg.de](mailto:silke.weiss@hdz.uni-freiburg.de)

### University Library - UB, Media Center

You have questions about the university's video server, recording and webcasting via Panopto, recording solutions in the lecture hall, equipment on loan (cameras, microphone) etc.:

- Videosever/Vimp: [joerg.zembruski@ub.uni-freiburg.de](mailto:joerg.zembruski@ub.uni-freiburg.de)
- Panopto: [panopto@ub.uni-freiburg.de](mailto:panopto@ub.uni-freiburg.de)
- <https://www.ub.uni-freiburg.de/unterstuetzung/medienproduktion/>

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