

Guidance for the implementation of Online Examinations

for students and lecturers

in the Physics /Astronomy Department
(Fachgruppe Physik/Astronomie)

Version 27.01.2021

Overview

This guideline lists some possibilities and recommendations for the implementation of written Online-Examinations. The objective is to provide the lecturers with sufficient material and to inform the lecturers and students such, that for the various courses appropriate written Online-Examinations can be prepared and put into practice.

This guide proposes four procedures for the realisation of digital examinations:

- Examination@Home: a conventional written examination is taken at home, then scanned and submitted by digital means.
- eCampus Test Module: A written online examination, that is filled out by means of a browser.
- Exceptional examination format: Within this framework „Homework“ can be submitted by electronic means.
- Oral examination: via Zoom

Information concerning these examination forms is provided by the University, also see https://www.ecampus-services.uni-bonn.de/en/nachrichten/teaching-digitally?set_language=en

Tryout examination

In particular for the Examination@Home and the eCampus Test it is important, that the entire technical procedure is rehearsed with the students in a **Tryout Examination** at an appointed time before the examination. The equivalence to a conventional written examination is given only, if technical problems can be dealt with beforehand and can be reduced to a minimum.

This tryout examination can take place either during the appointed time where normally the lecture is held or at an appointed time late in the afternoon / in the evening. The lecturer is responsible for the organisation. Please **announce** the tryout examination **in due time**.

In order to simulate the electronic submission realistically and in order to uncover weak points, it is recommended not to divide the participants in small groups (e.g. exercise groups).

General procedural rules

For general rules concerning the procedure, also see the **Guideline of the Rector's Office:**

<https://www.ecampus-services.uni-bonn.de/de/anleitungen-und-links/anleitungen/handlungsleitfaden>

Voluntariness:

Participation at the examinations, that, because of Covid-19 are offered in Online-Formats, is voluntary. Should the exam result in a failure, then this will not be counted for the maximum number of examination attempts.

Authentication:

As far as the submission of the written examination requires a login with the UniID, e.g. to eCampus or Sciebo, this is considered to be a sufficient authentication.

It is not permitted to require that the students show their ID-Card in the camera in order to identify themselves. (Exceptions are exemplified in the guideline of the rector's office, this, however requires an "Onsite"-Zoom instance, that has to be activated individually). A scan of the ID-Card, that is submitted with the solution of the written examination is acceptable though.

Communication between the participants and the supervisors during the examination:

During the examination the participants should be logged on to a **Chat-Session** (zoom), in order to be able to communicate with the supervisors of the examination.

Likewise during the entire period a „**Hotline**“ by telephone must be reachable, in order to indicate technical problems and to provide solutions for these. It is the responsibility of the lecturers to provide such a Hotline.

Supervision:

For control purposes the participants can be demanded to sustain a video connection (zoom) during the written examination. This control can also be demanded for the period after the solution period, that has been foreseen for the (electronic) submission of the solution to the examination.

Screenshots and video recordings of the examination are forbidden.

Students can be required to pan their room with their camera, if this is explicitly stipulated together with the examination announcement **2 weeks before the actual examination date**.

Virtual backgrounds are forbidden.

Examination results may not be communicated in a Zoom Meeting (also not in an oral examination).

Problem design:

No „Multiple Choice“ (MC) examinations:

- The examination regulations do not cover MC examinations.
- Single problems/questions with MC-character are permitted, the maximal number of points associated herewith should not exceed 10% of the total number of points.
- There are no objections against problems in the form of „Quickies“, i.e. short questions that can be answered readily (e.g. by means of a single word); this is often used as a warm up“.

Capacity of the digital infrastructure (in particular eCampus):

It is strongly recommended to conduct the Online examinations at the allotted time of the “normal” examinations; otherwise server problems are to be increasingly expected.

Attention must be paid to the weekly maintenance period at Wednesday 10 am – 1 pm. Presently, a temporary suspension of this maintenance period is discussed.

Carnival Monday (Rosenmontag) is a regular working day, online examinations can take place on this day.

Inspection of the examination

An opportunity to inspect the examination must be organised. For small and medium sized courses Zoom Conferences with Breakout Rooms proved to be suitable formats.

For courses with a large number of participants the format is not settled yet.

Self-declaration

In principle the examination must be completed independently without assistance of third parties; communication with other participants of the examination and third parties is forbidden.

The compliance with these rules is confirmed by signing a self-declaration.

The participants should prepare the self-declaration before the written examination — either by copying it by hand or by printing — and submit the signed version together with the solution sheets.

The following template is taken from the guideline of the rector’s office:

Affirmation in lieu of oath concerning the examination

To the attendance of the students: If you communicate this affirmation electronically as scan or photo only, keep and file the original document for evidence. Submission of the signed original document can be requested after the examination.

1. Personal Data (please use block letters)

Surname:

First name:

Matriculation number:

Study course:

2. Examination Data

Full name of the examination:

if applicable: name of the partial examination:

Examinator:

Date of the examination:

Dear Madam / Sir, herewith I declare in lieu of oath, that I completed the examination mentioned above independently, without any third party assistance and did not use any auxiliary means, that were not allowed for. I am aware the violation of the examination rules concerning deception according to "§ 63 Abs. 5 Hochschulgesetz NRW" constitutes a regulatory offence and the submission of a false affirmation in lieu of oath will be prosecuted as a criminal offence.

Place, Date, Signature:

Concerning Copyright (for students)

Please note: Lecture materials as well as examination problems / examination formulations and assessment schemes and sample solutions are protected by copyright and any use outside the specific context of instruction and examination, e.g. upload on platforms, reproduction in lecture notes, forwarding to other students or third parties – whether printed or electronically – is liable to prosecution. Moreover it can lead to claims concerning omission and compensation.

Examination@Home

A written examination not taken at the university, but as a rule at home.

It is possible to allow for the use of lecture notes, scripts, books etc. during the solution of the examination. This concept is called “Open Book” Examination and the appropriateness for a specific course is up to the lecturer to decide. It should be mentioned, that if the use of auxiliary means is restricted this must be supervised (e.g. via the video function of a Zoom conference).

There is a separate guide to Open Book Exams prepared by the university:

<https://www.ecampus-services.uni-bonn.de/de/anleitungen-und-links/anleitungen/openbookklausuren>

The examiners are allowed to compare the submitted examination sheets in order to verify possible deceptions.

Performing the examination

The examination is provided electronically as a pdf-file, preferably simultaneously via two distinct platforms, such as eCampus, Sciebo, a research group website or E-Mail.

The duration for solving the problems should be clearly defined, as a rule between 90 and 180 minutes.

At the beginning of the examination the procedure, in particular concerning the provisions in case of problems (Hotline, in time reporting of problems) should be reiterated. It should be stressed, that the examination should be taken independently without any communication with third parties. Please allot time for this!

Usual formal aspects: (as in ordinary written examinations)

- The cover sheet should be made according to the template (surname, first name, date of birth, matriculation number) by hand and signed accordingly. On this cover sheet it is confirmed that the examination has been processed according to the self-declaration (spelled out in the examination).

- The solutions of the examination problems must be written by hand on blank sheets (use a dark pen in view of the required scan later); a direct input via a (graphical) tablet is, in view of equal opportunities, not permitted.
- Please keep appropriate margins; the student is responsible for the full readability of the scans.
- The solution sheets should be numbered uniquely and the reference to the problem posed should be unambiguous, this is also the responsibility of the participant.
- Hint: Problems/questions should be identified by the participants not only by a problem number but also by a keyword.

Digitising the solution sheets

After the solution period an additional period of 60 minutes is allotted in order to scan the cover and solution sheets and to submit these as a single pdf-file.

On the cover sheet of the examination an area should be reserved where the ID-card can be put, such that it can be scanned simultaneously with the cover sheet. This serves as a Backup for authentication in case this is not defined by a Login using the Uni-Id.

Scans can be made either by a scanner or with a scan(ner)-app on a smartphone or tablet. Such apps are available free of charge for Android and iOS (e.g. Adobe-Scan, CamScanner, Fast Scanner: Free PDF Scan).

Making a picture without an appropriate scanner app is not considered to be a suitable method to digitise the solution sheets.

It is the responsibility of the participants on the examination to get proficient with the scan apps to be used and to take care that the generated pdf-file is not too large to be uploaded appropriately.

The generated pdf-file should be named according to the scheme:

<phXXX.surname.firstname.matriculationnumber.pdf>

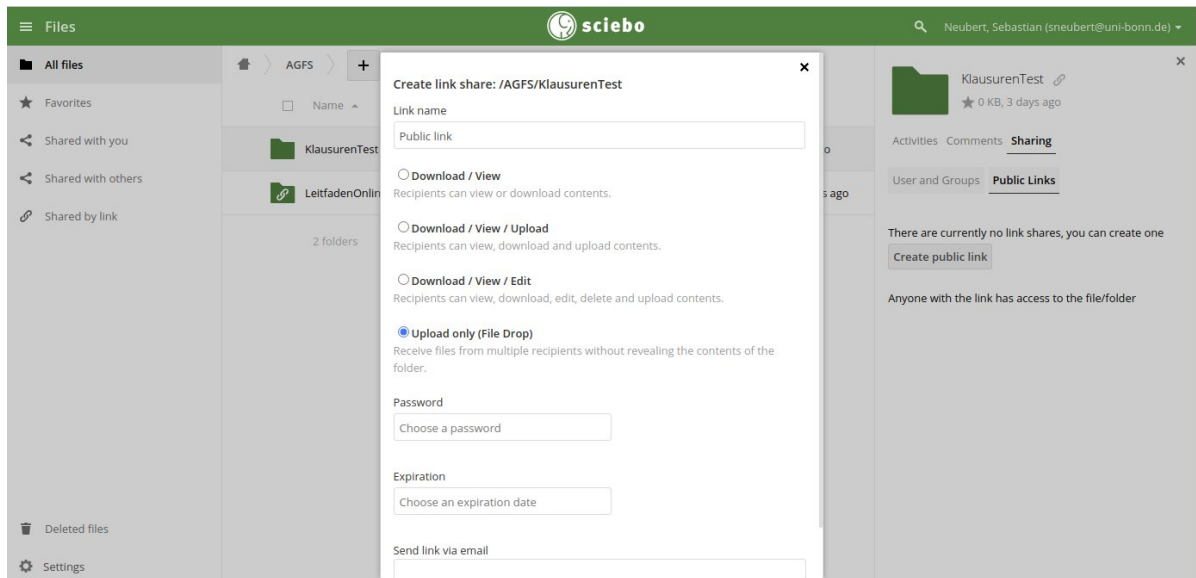
where phXXX (or astroXXX, respectively for astrophysics-Modules) denotes the module code number.

The original hand-written solution sheets should be retained and filed. For verification purposes, on request they should be send to the official university address of the examiner by registered (surface) mail "Einwurfeinschreiben" (such that the sender has an evidence).

Submission of the examination

The submission of the solution to the examination is done by uploading the pdf-file with the scans in a cloud directory, e.g. Sciebo or eCampus. Only on instruction command by the supervision of the examination as an exception a submission by email is possible, but only via the Uni-bonn email address; Please note: there is a size limit (about 10 MB) for attachments!

Lecturers must ensure that in the cloud directory (only a single) upload ist possible, that this directory is not visible and that later changes are prohibited (see picture below).



In case the solutions were scanned by smartphone, the participants should ensure that a correct (re-)naming of the pdf-file is possible. For this purpose it might be necessary to transfer the file first to a computer, e.g via Instashare, Airdrop or USB.

The lecturers should make provisions for a complete technical rehearsal (problem downloading, generation of the cover sheet, scanning the solutions, uploading the solutions).

Dealing with technical problems

The 60 minutes allotted to digitisation and uploading the solution exclusively serve the purpose to submit the examination solution in due time. The participants on the examination take the full risk of a delayed submission: Sufficient familiarity with technical issues and an immediate start of the digitisation after the solution period are assumed.

Sufficient evidence for the occurrence of technical deficiencies must be provided, e.g. by screen-shots or photos. In any case the examiners should be contacted immediately via the communication channels provided. **Problems with scanning the solution have to be notified within the first 30 minutes of the digitisation period.** Problems with the upload can also be reported after these first 30 minutes, but will not be accepted after the deadline for submission.

If students are not able to meet the technical or spatial requirements needed to regularly participate on the examination, or if they do not agree with a supervision by video of their private rooms, it is possible that, on request by the student to the examiner, equipment can be loaned and/or by exception an appropriate room at the university can be provided.

eCampus „Test“ Module

With the module “Test” eCampus provides an own system for the creation of examinations, that can then be solved by means of a browser.

For the implementation the same recommendations as for the [Examination@Home](#) apply. Scanning of the solution then of course is obsolete. Also there ist no backup-solution in case of a failure of eCampus.

In the following we provide some hints for configuring the “Test” Module. **Also here a tryout examination is mandatory.**

The **Documentation of the ILIAS Test Module** can be found here:

https://docu.ilias.de/goto_docu_lm_147.html

Configuration

Upon creating the examination special care should be taken that the participants can solve the problems in arbitrary order. This not necessarily is the default setting.

In the configuration menu the item “**Zeige Liste der Fragen**” is provided; here an overview of all questions can be generated.

We advise against using the feature to automatically generate the examination from a question-pool, this would compromise equal opportunities.

The tag at “Auswahl der Testfragen” should be set at “Fest definierte Fragenauswahl”.

Question types

The following question types seem to be especially appropriate for physics:

- “Formel Frage” (formula question): This allows for generating individual values for (physical) quantities (Documentation: https://docu.ilias.de/goto_docu_file_1541_download.html)
- “Numerische Frage” (numerical question) : A number is requested as answer
- Essay Frage (essay question): free formulated text
- Hotspot/Image Map: the answer is a “click” on the right location in a graphical representation.

Technical Problems

Grace period: Also in case of technical problems the participants are obliged to remain at disposal for at least a further 30 minutes and to coordinate with the supervision of the examination via the chat channel.

In case of severe problems, where the examination can not be continued within a period of 30 minutes, the examination will be repeated at an other date.

Oral examination

Oral examinations via Zoom are possible without restrictions. The students registered in "Basis" should however consent to a change in the form of the examination.

In particular in case of a limited number of participants this form of examination is recommended.

Also in case of an oral examination, it is not allowed to communicate the resulting grade via Zoom.

The oral examinations associated with a lecture must all be scheduled and take place at the same day. If the number of participants is too large, then the examination period may be extended to two consecutive days. Individual appointments for examinations outside the foreseen exam day(s) are not allowed.

Exceptional examination form ("Semesterarbeit" (Home work))

Homework can be readily submitted in digital formats. Please note that also in this case the participants of the examination registered in "Basis" should consent, if this represents a change in the form of the originally foreseen examination.