

# **PsyBSc10: Empirisch-experimentelles Praktikum (EXPRA)**

## **Guide for students**

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## What is EXPRA?

The “EXPRA” (German: *Empirisch-experimentelles Praktikum*) is a practical, hands-on seminar designed to teach you the theoretical and especially the practical aspects of psychological research. This includes (with varying emphasis in each group):

- coming-up with a research question,
- formulating hypotheses,
- designing (and programming) an experiment to test these hypotheses,
- collecting, working with, and analysing data,
- presenting and discussing your research, and
- writing a scientific report on your project.

At the core of EXPRA is the idea that you work on a current research question in small groups under close supervision by a researcher of that field. Very often, the experiment you are carrying out will directly or indirectly feed into the work of the respective research unit. You will thus not only learn to use psychological research methods but also gain insights into the research currently carried out at your institute.

## What are the goals of EXPRA?

At the end of EXPRA, you should have learned how to

- critically read and discuss scientific literature,
- design an experiment and “think like a scientist”,
- preregister your project,
- carry out psychological research,
- analyse and interpret data using R, and
- communicate your research projects in an oral presentation, scientific poster session, and experimental report.

## What do I have to do to pass EXPRA?

To pass EXPRA, you have to

- *actively* participate in the sessions and meetings with your instructors,
- carry out tasks required of you in time (e.g., reading literature, piloting the experiment, collecting stimuli),
- preregister your study and make study materials available on LIFOS (see below),
- submit a demo report as a group (not graded),
- participate in at least five experiments of other EXPRA groups (“collect 5 E”, see below),
- collect data for your project from fellow students, friends, family, flat mates, etc.,
- analyse your data using R,
- present your research results in one of the sessions, and
- prepare a scientific poster and present it to other students in the poster session.

Lastly, you’ll have to write a scientific report (the “EXPRA report”, see below) on your project. This report will be graded and will determine your grade for the entire EXPRA (module PsyBSc10).

### How many credit points will I get for completing the EXPRA?

You will receive 8 credit points (CPs) for successfully completing the EXPRA and submitting an EXPRA report. Eight CPs equal 240 hours of work, meaning roughly 80 hours per month in a three-month semester. The EXPRA is therefore among the seminars requiring the most work in your bachelor, but you will get rewarded with a bunch of CPs and hands-on scientific experience.

### Who can participate in EXPRA?

To be allowed to participate in EXPRA, you must be enrolled in a psychology bachelor's programme and have passed modules 1, 2 and 7 (PsyBSc1: Einführung in die Psychologie als empirische Wissenschaft, PsyBSc2: Statistik I, PsyBSc7: Statistik II). **Students who took the Statistik II exam (PsyBSc7) but haven't received their grade yet may participate until the grades are officially announced by the examination office. However, once the grades are announced, those students who failed the exam cannot continue to participate in EXPRA.**

### How do I share study materials via LIFOS?

As an exercise in open science practices, you are required to share your study materials via [LIFOS](#) (local infrastructure for open science for psychology students at Goethe University). For more info on LIFOS see [here](#). Note that sharing materials is part of the grading criteria. The deadline for uploading materials is the same as for submitting the EXPRA reports.

Specifically, you should upload:

- Your preregistration (filling out the template provided by LIFOS as a group; **mandatory**)
- Materials (e.g., stimuli you collected; **optional**)
- Analysis scripts (each student should upload their own analysis script; **mandatory**)
- Data (**anonymized**; one data file for the whole group unless you worked with different datasets; **mandatory** except for data that may not be shared for legal reasons, see [here](#))
- Manuscripts (you may upload your own manuscript **after the EXPRA report submission deadline**; **voluntary**, manuscript **can be anonymized**)

### What is the EXPRA report and how is it supposed to look?

The EXPRA report is the final exam ("Prüfungsleistung") you'll have to write on your research project. This report will be graded and will determine your grade for the EXPRA (module PsyBSc10).

Each student writes their own EXPRA report on the research topic they worked on during the EXPRA. Note that the EXPRA projects are usually carried out in groups, but each student must submit their own, individual EXPRA report (no group work in the final reports, no identical titles, figures, etc.)!

The EXPRA reports must

- be written in English (unless stated otherwise),
- be ca. 15 pages long (excluding table of contents, appendix, but including references),
- be formatted in Times New Roman, size 12, double-spaced,

- follow [APA Style](#) (publication manual, 7<sup>th</sup> edition) if not stated otherwise,
- include a link to the preregistration (e.g., on [aspredicted](#)),
- include an R script containing code of all analyses you carried out (this can be submitted as a separate file along with the EXPRA report), and
- a signed (!) declaration of originality on the last page of the report (see below).

To make grading of the EXPRA reports transparent, the grading criteria are attached to this document.

The deadline for submitting the EXPRA reports is three weeks after the final data analysis session. In other words: once you have analysed your data and discussed the results with your supervisor, you have three weeks to write and submit your reports. The exact deadline will be announced by your supervisor.

Students must register their EXPRA reports with the examination office (Prüfungsanmeldung via QIS) and append a signed declaration of originality (*Eigenständigkeitserklärung*, for a template see [FAQs by the examination office](#)).

### **What is the DEMO report and how is it supposed to look?**

As an exercise and preparation for the EXPRA reports, we ask groups of students (usually the same groups working on an EXPRA project together) to submit a “demo report” on a demo experiment carried out in class. This is usually a simple, well-established experiment in which all students participate. Your instructor will then show you how to analyse and interpret the data gathered in the demo experiment. Afterwards, you’re supposed to write a short scientific report on that experiment (usually up to 10 pages, for other requirements see EXPRA report above). This report is written as a group, and your instructor will then give you detailed feedback on this demo report to avoid common mistakes when you write your final reports.

### **What is the difference between the DEMO and the final EXPRA report?**

- The demo reports are not graded, the EXPRA reports are.
- The demo reports are written as a group, whereas each of you must submit your own, individual work for the final EXPRA reports!
- All demo reports are written on the same demo experiment carried out in your class. The EXPRA reports will be written about the specific projects you are carrying out with your tutors.
- You will receive extensive feedback on your demo reports to avoid common mistakes when you’re writing your EXPRA reports. You will NOT receive feedback again on your final reports before they are graded!

### **Where do I find EXPRA studies to participate in?**

All EXPRA studies will be advertised on [SONA](#) and can be identified by the “[E]” tag at the end of the study name. You will need a student account to access SONA and sign-up for studies (contact [sona-support@dlst.server.uni-frankfurt.de](mailto:sona-support@dlst.server.uni-frankfurt.de) in case you forgot your account details). You will receive credits ([Versuchspersonenminuten](#)) for all EXPRA experiments. This will automatically be taken care of by SONA.

### How do I collect the 5 E?

To ensure that all groups get the chance to collect enough data for their experiments, each student is required to participate in at least five experiments from other EXPRA groups (“collect 5 E”). To do this, you will receive a 6-digit number code at the beginning of EXPRA. In each EXPRA experiment (those identified with the “[E]” tag on SONA), you will be asked to enter this code to count towards the 5 E. At the end of the semester, we check that all students participated in at least five EXPRA experiments.

Note that you will of course still receive credits (Versuchspersonenminuten) in addition to the “E” when you participate in EXPRA experiments. You can also participate in more than five EXPRA experiments if you still need to collect VPM. Note, however, that you will also have to participate in at least five studies even if you already finished collecting your 1800 VPM.

### Where do I get software required for the EXPRA?

You’ll need to have a current version of R and [RStudio](#) installed on your laptops to analyse your data. See [here](#) for an installation guide.

You’ll also need a presentation software and a design program of your choice to create your scientific posters (PowerPoint does the job, but there are free alternatives like [Inkscape](#), [Scribus](#), etc.).

We further highly recommend using a reference management software such as [Zotero](#), Citavi ([free as long as you are a student](#)) or Mendeley for your reports. Most of these tools have plugins for Microsoft Word which makes in-text citations and creating reference lists a matter of a few clicks. Ask your instructor which software they use to get help.

### What knowledge is expected of me in the EXPRA?

Since passing statistics I and II is a prerequisite for participating in the EXPRA, **we assume that you have understood and can carry out basic statistical analyses in R.** This includes (among other things) reading data into R, calculating descriptive statistics, aggregating data, correlation and regression analyses, dependent and independent sample *t*-tests, repeated-measure ANOVAs, and assumption tests for the different procedures. If you need a brush-up for these topics, have a look at the [PsyBSc2 and PsyBSc7 course materials](#) and work through them before the EXPRA begins. **Important: The EXPRA will NOT include a repetition of basic statistics!**

**APPENDIX****Grading criteria for EXPRA reports**

Author:

Title:

	<b>Points</b>				
<b>Abstract</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Introduction of the general topic/field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Description of the scientific question and/or hypotheses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Description of sample and experimental paradigm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Summary of main results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outline of central discussion points	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Summarizing conclusion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of scientific language and expressions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Length (max. 200 words)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Introduction</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Introduction of the general topic/field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Theoretical foundation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Summary of related studies and core findings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Development of the research question	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Description of hypotheses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amount and relevance of incorporated literature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate use (and definition of) scientific terms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clarity and conclusiveness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Method</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Participants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Procedure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consistency with introduction and hypotheses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>Results</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Appropriate cleaning and aggregation of raw data	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of appropriate statistical tests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correct report of statistical results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Report of central findings (in text, figures and/or tables)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Evaluation of results with regard to hypotheses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clarity and readability of figures and tables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Formally correct reproduction of figures and tables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>Discussion</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Short summary of research question, paradigm and core results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Critical evaluation of hypotheses based on descriptive and statistical results	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comparison of results with previous findings and literature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Theoretical and/or applied implications of findings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Critical, data-driven evaluation of plausibility and validity of results, reasons for hypotheses falsification, limitations, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outlook and follow-up questions or experiments, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Summarizing conclusion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clarity and conclusiveness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>Formal</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Title page and table of contents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In-text citations (formal correctness and completeness)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reference list (formal correctness and completeness)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adherence to APA guidelines (text formatting, layout, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Language (typing errors, grammar, scientific language, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appendix (including analysis script, preregistration, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Correct preregistration and report of any deviations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Data and materials made openly available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Final grade:** \_\_\_\_\_

*Note.* Grades are not a mere sum of the points above! Some criteria are more important than others (e.g., the title page is not as important as the theoretical foundation of a report). The grades should rather focus on the overall strengths and weaknesses of the report and reflect whether it is complete, correct, clear, conclusive, and convincing.