

External internship - conditions, notes etc. Department of Statistics, TU Dortmund University

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According to the module handbooks of the study programs of the Department of Statistics (Terms of Studies 2019), the successful participation in an external internship can be recognized under certain circumstances. It is a course in the elective area of the respective study programs.

In the bachelor's degree program Data Science, in the module BD 14 Projektarbeit, the partial achievement Seminar (4 credit points) can be replaced by an internship of at least 4 weeks. In the master's programs Data Science and Statistics, in the module *Projektarbeit / Project Work (MD 4 / ME 3 / MS 4)* the partial achievement Fallstudien II / Case Studies (8 credit points) and in the master's program Econometrics the module *Case Studies (ME 3)* can be replaced by an internship of at least 6 to 8 weeks (2 months).

According to the module manuals:

Alternatively, the course [...] can be replaced by an external internship after consultation with the examination board, in which the students participate in a project with statistical methodological relevance within an institution with subject-related activities and subsequently write a report on the internship and the analyses performed.

Since the original module / partial performances are graded, the internships taken as a substitute are also **graded**. The grade is determined by a final report to be written. This final report must be submitted **no later than 4 weeks** after the end of the internship; extensions are possible in justified individual cases.

It has to be noted that these modules have formal **admission requirements**, details of which can be found in the respective module handbooks. In particular, if admission to the study program was subject to **pre-requisite courses**, these **must be completed before the start of the module**. The admission requirements must also have been fulfilled if an external internship is taken as a substitute. **If the admission requirements are not fulfilled in time, the internship cannot be credited.**

In **individual cases**, this regulation **may be waived** upon a **well-founded and accepted request** to the supervising university professor. This applies in particular to take into account the additional effort involved in organizing and the flexible start of a traineeship. If approved, it is sufficient if the admission requirements are met before the final report is submitted. **Attention:** If the internship started before the admission requirements were completed, but the requirements could not be passed by the time the report was submitted, the internship cannot be counted.

It is mandatory that **the internship is accompanied, supervised and evaluated by a university professor**. In general, all university lecturers who are involved in the teaching of the respective degree program are authorized to supervise. Other university lecturers of TU Dortmund University (as well as for the Master Econometrics of the co-implementing faculties of economics of the Ruhr-University Bochum and the

University of Duisburg - Essen) may also be authorized to supervise the internship in individual cases upon request to the responsible chairman of the examination board.

It is the student's own responsibility to find a suitable university professor for supervision. It is recommended to check the areas of interest of the university professor on their websites and to contact suitable candidates directly. **There is no claim to a supervisor.** If no suitable supervisor can be found, the internship cannot be credited and the Fallstudien II / Case Studies course has to be taken instead.

The responsibilities of the supervising university professor in this regard are:

- Before the start of the internship, the supervising university professor certifies that the **project is sufficiently relevant** in the respective subject area. This is recorded on the application form. The range of tasks and the goals of the internship should also be clarified together in advance and recorded in an **exposé**.
- Contact person / person of trust for the student during the internship
- By arrangement: attendance at important interim presentations
- Correction and evaluation of the final report

Attention: No contract should be concluded with a company until supervision by a university professor has been ensured!

The internship must be officially registered before starting work. For this purpose, a **routing form** is available on the website and on request from the examination administration. This routing form must be signed by the student, the supervising university professor and the company. Withdrawal from the examination is possible at any time until the report is submitted.

Guidelines and instructions for the selection and execution of the external internship within the study programs of the Department of Statistics at the TU Dortmund University:

General things, purpose: learning on the object and gaining professional practical experience.

The external internship is designed to give students the opportunity to test and apply their previous statistical knowledge in practice. At the same time, it offers students the chance to experience the real working environment of a Data Scientist / Econometrician / Statistician (DS/E/S) at an early stage, so that they can use the experience gained while still studying.

The internship helps to assess the practical relevance of university training content for one's own needs and thus contributes to a goal-oriented course of study.

The internship must be completed within an institution (company, authority, research institute or similar) with subject-related activities. There, the students should be supervised in such a way that they gain insight into the significance, contents, interrelationships and processes of the work procedures of a DS/E/S. For this purpose, the students should support the work of the DS/E/S **at the internship institution** (if

possible no / little home office!) and, if possible, work on their own, self-contained project.

The assigned project should be relevant to the internship institution and include, among other things, the analysis of (raw) data. The methodology used for the analysis should be comparable to the requirements of the course Fallstudien (Bachelor) or Fallstudien II / Case Studies (Master). Whether work is done within a team of the internship institution or whether the students work independently on a project is not decisive. In any case, the field of work should be such that the students are given a relatively self-contained, definable task, the solution of which is of significance for the institution.

Furthermore, students should also become familiar with statistical consulting. For this purpose, observation of consulting sessions is just as suitable as the interaction of the students with "non-specialists", so that the students can experience the transformation of a "real problem" into statistical terms and concepts, recognize the difficulties that arise in the process and, if possible, become active in consulting themselves (in smaller cases).

The internship relationship is to be regarded as a kind of volunteer relationship. The university can therefore offer neither a performance nor a liability guarantee for the work done by students in the internship institution.

Time expenditure

In general, three phases can be identified, the definition phase (clarification in advance at which institution the internship is to be completed, who is responsible for supervising the students there, which university professor supervises, etc.), the pure internship phase and finally the follow-up phase, in which, among other things, the report must be prepared. At least three quarters of the total time should actually be spent in the internship, while the remaining 25% can be spent on preparation and follow-up.

The time expenditure of the internship must be comparable to the time expenditure for the seminar in the Bachelor, or the Fallstudien II / the case studies in the Master. With approx. 30 working hours per ECTS, this results in a workload of approx. 120 hours in the Bachelor's program and approx. 240 hours in the Master's program.

If possible, the external internship should be carried out as a block internship during the semester break. It should last about four weeks in the Bachelor, and about six to eight weeks in the Master. It can be assumed that during this time the students will spend about half a working week (19-20 h) at the internship site on the internship itself. In the Bachelor (4 weeks) this corresponds to about 80 hours, in the Master (6-8 weeks) up to 160 hours. Together with a corresponding preparation and wrap-up of the internship, the total workload given above results.

Even if the students are quasi "full-time interns", it can be realistically rather assumed that they spend about half of this time on the internship, while the rest of the time they get an insight into the internship institution or are also entrusted with smaller routine tasks. The scope is therefore comparable to a block internship (scope of about 20 (Bachelor) or 30-40 (Master) full working days). However, the internship can also be

recognized as a study-accompanying internship during the lecture period after consultation; this should not last longer than one semester.

Requirements in terms of content

A distinction must be made here between the requirements in the Bachelor and in the Master:

Bachelor: In the Bachelor, the primary goal of the internship is to get to know the practical corporate culture and to be involved in a real working environment of a DS/E/S. In addition, an internship in the Bachelor's degree must also have a content component in which a relevant problem from practice is to be dealt with.

Master: Just like the courses Fallstudien II / Case Studies, the non-university internship should also contribute to the practice of the students' consulting competence, if possible. DS/E/S problems from practice should be solved; a methodologically meaningful analysis of (raw) data from the application should be a component of the internship.

A report of the student is submitted to the supervising university professor of the Department of Statistics after the internship. This report should be about 15-20 pages (Bachelor) or 25-30 pages (Master). It provides information about the institution, location, time period as well as content-related activities and the experience of the internship. This report must also be submitted to the internship institution and should be accompanied by a statement from the supervisor there (e.g. about special features, successes, etc. of the internship, keyword "internship report" or "work report"). Further formal details as well as deviations, e.g. from the volume, are determined in individual cases by the respective supervising university professor.

The university's internal supervisor evaluates the submitted report including the statement by the internship institution and awards a corresponding certificate of achievement if the requirements are met. This replaces the certificate for the course Seminar or Fallstudien II / Case Studies.

Certificate of the internship institution

Students are advised to obtain a certificate from the internship site in the form of a job reference to be used in job applications.

Brief overview of the requirements for the non-university internship of the Department of Statistics of the TU Dortmund university (notes for internship institutions).

Content	<p>Learning on the object, career practical experience:</p> <ul style="list-style-type: none"> • Getting to know an occupational field and typical work processes • Processing of a statistical project, analysis of (raw) data • Insights into statistical consulting 	<p>Students of the Department of Statistics can complete an external internship instead of the course Seminar or Fallstudien II / Case Studies.</p> <p>The students are to gain an insight into the professional field in an institution in statistics-related areas and thereby apply their methodological knowledge in practice.</p> <p>For this purpose, the students are to be entrusted with their own smaller project.</p>
Time expenditure	<ul style="list-style-type: none"> • Block-Internship: Bachelor: ca. 4 weeks, Master: ca. 6-8 weeks • Semester-long: about 20 (Bachelor) or 30-40 (Master) full working days. 	<p>Students should devote about half of the internship time to a special project, while the rest of the time they observe in the field of statistics, assist in statistical consulting, or perform minor activities and tasks.</p>
Supervision	<ul style="list-style-type: none"> • internal and external supervision 	<p>The students should be supervised both in the internship institution (fixed contact persons) and by the university (arrangements with a university professor in advance).</p>
Report	<ul style="list-style-type: none"> • Writing of a report by the students 	<p>At the end of the internship, the student prepares a report (approx. 15-20 pages for the Bachelor's degree, approx. 25-30 pages for the Master's degree), which contains the essential aspects of the activities and presents the project (problem, approach, chosen methods,...).</p> <p>The report is submitted to the internship site as well as to the supervising university lecturer. A short statement should be made by the external internship supervisor. The report is an essential basis for the graded performance record.</p>
Certificate	<ul style="list-style-type: none"> • Activity certificate (employer's reference) from the internship site 	<p>Internship institutions are asked to provide students with a job reference or comparable certificate at the end of the internship; such a certificate serves both as proof of the work performed, but is also intended to serve students as evidence of practical experience in subsequent job applications.</p>