



**Study
Program
Handbook**

Pre-Bachelor Semester

Program Handbook 2027

constructor.university/programs/pre-degree-programs/international-foundation-year

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Basic Information

Program Name:	Pre-Bachelor Semester (PBS)
Type:	Pre-Degree
Level:	Level 0 (Pre-university)
Exit award:	PBS Certificate (PBSC)
Award notes:	Successful completion of the PBS program is recognized by Constructor University as an element preceding the progression to several specified undergraduate degree programs.
Modes of study:	All students will be full-time students. Language of instruction is English, and no German knowledge is required for the studies.
Age requirements:	All students must be at least 16 years old when entering the program.

Award	Minimum entry requirements
Pre-Bachelor Semester Certificate (PBSC)	Preparation Pathway: CEFR B2 (or equivalent) English Qualification Pathway: CEFR B1 (or equivalent) Minimum academic requirement is a High School Diploma/Certificate recognized as a higher education entrance qualification in Germany. Recognition is determined following guidance of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany ("Kultusministerkonferenz", KMK) and the State of Bremen.

Program Overview

Specific Educational Aims

The Pre-Bachelor Semester (PBS) is a pre-degree program which enables students to prepare for their undergraduate education during the preceding Spring Semester, transfer up to **12.5 ECTS** to their first-year undergraduate program, and acclimate themselves to living and studying in another country where cultural context is very different from their own.

PBS students can choose an undergraduate CHOICE or Methods module (see the Curricular Structure section for more info) where they can transfer credits related to the bachelor programs onto which they wish to progress. The program also offers students with no prior knowledge of German language the possibility to finish a full A1 level in **one semester**, such opportunity is not available to undergraduate students. Students with prior knowledge of German can take a language placement test and be placed accordingly to further their knowledge. As alternative option to a German language module, students can choose an undergraduate Humanities module. Language and Humanities modules also allow for credit transfer. Students working towards the PBS Certificate are also able to review their mathematical and English language skills, as well as learn essential computer literacy for their university studies.

The PBS program also offers students with B1 English level the opportunity to reach B2 level, qualifying them to undergraduate university studies at CU.

Based on these selected modules, PBS students can move into first year degree studies with transferred credits, improved German language, increased confidence in their university study skills, and English qualification for university studies.

Qualification Aims

The PBS program at CUB aims to help students:

- achieve A1 level German before entering university;
- develop their academic English;
- achieve B2 English level for university studies in one semester;
- reinforce their mathematical knowledge;
- develop computer literacy skills;
- recognize what is expected of them in a university environment;
- take an undergraduate module from your intended bachelor program with possible credit transfer;
- expand their academic and personal qualifications through career development.

Intended Learning Outcomes

By the end of the program, students will be able to:

- Achieve A1 or higher-level German;
- understand what is expected of them in a university environment;
- apply improved academic English and applied mathematical skills;
- possess B2 English level skills for university studies;
- use digital devices to create, gather, analyze, and present information;
- prepare properly for their upcoming undergraduate education;
- reflect on their personal and professional development;

Program Structure

CORE modules include Mathematics, English, and Computer Literacy. Undergraduate modules include a CHOICE or Methods module from the Spring Semester (as per prerequisite conditions), and a German language or Humanities module. This module combination will provide ideal academic preparation for PBS students into the undergraduate program of choice. Depending on the English level of the applicants, two possible study pathways are available:

The **Preparation Pathway** allows students who have already been accepted to undergraduate studies at CU to start one semester earlier, prepare for their first year, and transfer ECTS credits.

The **English Qualification Pathway** additionally offers students with B1 English the B2 English level qualification needed for acceptance into undergraduate studies at CU.

Students who do not know their English aptitude level will undergo a proficiency test before starting their studies to be placed in their adequate pathway.

Schematic Study Plan

Preparation Pathway				
Spring Semester	Undergraduate CHOICE or Methods (5 - 7.5 ECTS)	Undergraduate German Language or Humanities Module (2.5 - 5 ECTS)	Academic English II (5 CP)	CORE Mathematics (5 CP)
				Computer Literacy (2.5 CP)
English Qualification Pathway				
Spring Semester	Undergraduate CHOICE or Methods (5 - 7.5 ECTS)	Intensive Academic English (10 CP)		CORE Mathematics (5 CP)
				Computer Literacy (2.5 CP)

Teaching, Learning and Assessment Strategies

The PBS program implements a range of adaptive and innovative approaches to teaching, learning and assessment. Students and their personal development are at the heart of these strategies:

- A |** The PBS students are provided with a highly supportive and academically challenging environment.
- B |** Students will benefit from a less formal teaching approach, involving greater interactivity in small classes between students and instructors.
- C |** Cultural acclimation is facilitated through encouragement to participate in the wider community of both CU and Bremen itself.
- D |** The PBS program aims to cater for students who want to both properly prepare for their undergraduate studies and get the needed English qualification.
- E |** The PBS program offers an interactive, intensive English curriculum to bring students to the needed B2 English level for university studies. Our curriculum follows the renowned Pearson® MyGrammarLab® and Longman Academic series complemented by the versatile platform MyEnglishLab®.



Pearson's Academic English curriculum is an interactive ecosystem designed to bridge the gap between general English proficiency and the rigorous demands of higher education. It focuses on mastering the "Global Scale of English" by integrating the four core language skills (reading, writing, listening, and speaking) with a heavy emphasis on critical thinking and research literacy.

- F |** Regular tutorial sessions provide an opportunity for students to reflect on their study progress and stay up to date with course material.
- G |** A range of modes of assessment are applied to include assignments, group and individual presentations, projects, and interim tests to replicate the wider university experience. Midterm and final module assessments contribute to the final module grade.
- H |** Policies governing CORE modules are included in the 'Rules and Regulations', which will be presented to the students at the beginning of the academic year. Policies governing Undergraduate modules are included the 'Academic Policies for Undergraduate Students' as well as 'Academic Integrity', which can be found on the CU website under 'Registrar Services'.

Regulations

Students studying within the PBS program follow a set of regulations appropriate to a Level 0 program but modelled to CU's undergraduate students. Variations are only introduced to cover the requirements of a pre-degree program, particularly around reassessment opportunities. As part of the entrance requirement for the PBS program students need to have achieved the English language requirement according to pathway. Completion of the PBS program parallels admission into CU's undergraduate education.

Admission Requirements

All students who obtain a high school diploma or local equivalent prior to the start of the program and who possess English language skills equivalent to the **B2 (Preparation Pathway) or B1 (English Qualification Pathway) level** of the European Framework may apply for the PBS program. The application process is selective and seeks out motivated students who show both the intellectual and social potential to thrive in a diverse international study environment.

A complete Pre-Bachelor Semester application consists of the following:

- Online Application Form including a Personal Motivation Statement
- Recommendation Letter from a counsellor or teacher
- Certified Copies of School Transcripts of the last 2-3 years and a Certified Copy of the High School Certificate
- Educational History Form

Preparation Pathway

- Proof of English Language Proficiency (minimum score of 90 on the TOEFL iBT / 6.5 on the IELTS (UK) / standard score of 600 SAT Evidence-Based Reading and Writing (New SAT) / 59 on the Pearson PTE Academic or 160 on the Cambridge Certificate (FCE) / 110 on the Duolingo English test)

English Qualification Pathway

- Proof of English Language Proficiency (minimum score of 45 on the TOEFL iBT / 4.5 on the IELTS (UK) / 43 on the Pearson PTE Academic or 140 on the Cambridge Certificate (FCE) / 65 on the Duo-lingo English test)

Important information for the upcoming Spring 2027 intake: Students who require a visa for Germany should apply by October 15th since the visa process can take up to three months. The application deadline for EU students is December 15th. Applications are evaluated on a rolling basis.

More Information and Contact

Pre-Bachelor Semester program at Constructor University Bremen

Email: pre-degree@constructor.university

The Curricular Structure

Overview

Depending on the pathway, students will choose modules according to the following curricular structure:

Preparation Pathway

- Undergraduate CHOICE or Methods module
- Undergraduate German or Humanities module
- Academic English II
- CORE Mathematics
- Computer Literacy

English Qualification Pathway

- Undergraduate CHOICE or Methods module
- Intensive Academic English
- CORE Mathematics
- Computer Literacy

Session Types

Each Pre-Degree module typically includes three main types of session: seminars, tutorials, and study sessions.

Seminars

Two seminars per week are offered for a 5.0 CP module, and one seminar per week is offered for a 2.5 CP module. The seminars are led by the lecturer and have mandatory attendance. They are used for delivery of course content and are complemented by course material posted on the Learning Management Software.

Tutorials

One 30-minute tutorial per week is offered for a 5.0 CP module, and a 2.5 CP PD module includes one tutorial biweekly. Although attendance is not mandatory for tutorials, their goal is to encourage students to study regularly for the course, by giving them assignments which include material from the previous weeks. Students work on assignments in groups or individually, and the lecturer solves the assignments with the students after collecting them. The tutorial assignments are graded, and their average grade (max. 10 points) will be provided as 'bonus points' to students, to be added by the end of the semester to their overall grade.

Study Sessions

Lecturers may organize non-mandatory study sessions with the Teaching Assistant to offer further academic support for students. During a study session, students meet with the Teaching Assistant and together solve module textbook problems, course homework, or class assignments. Study sessions may also be used by late-arriving students or students who missed a class session to catch up on the class material with the help of the Teaching Assistant. Study sessions are scheduled in the week during the evening and/or on the weekends.

CORE Modules

English

Academic English II B2 CEFR (5.0 credit points)

The module focuses on greater fluency in English language and improved academic literacy skills. Students are introduced to the scientific approach of studying English with an emphasis on higher-level skills such as analysis, synthesis, critical thinking, and evaluation.

Intensive Academic English B2 CEFR (10.0 credit points)

The module focuses first on building a strong foundation of English proficiency, including listening, reading, writing and speaking. It then focuses on greater fluency in English language and improved academic literacy skills. Students are introduced to the scientific approach of studying English with an emphasis on higher-level skills such as analysis, synthesis, critical thinking, and evaluation.

Mathematics

Pure Mathematics (5.0 credit points)

This module is essential for students entering undergraduate programs within the Schools of 'Science' and 'Computer Science & Engineering'. Since developed mathematical skills are essential for these students, 'Pure Mathematics' provides them with the fundamental knowledge and tools to be properly prepared for the respective undergraduate degrees at CU. The course covers main topics in introductory algebra and calculus, and the study sessions include extensive problem solving as well as tutorials.

Introduction to Statistics (5.0 credit points)

This module is essential for students continuing their studies within areas of business and management, logistics, and social sciences and humanities, as fundamental knowledge in statistics is essential for degrees within these areas. The module covers main topics in statistical analysis and probability, sampling, and confidence limits. The study sessions include extensive practice of applied statistical concepts and models.

Computer Literacy

Computational Thinking and Coding (2.5 credit points)

In this module, students will analyze problems, refine concepts, and reflect upon the decision-making process by engaging in design, coding and computational thinking, and sustainable action. They will identify, explore, and clarify technological information and use that knowledge in various situations and challenges.

Fundamentals of C and C++ (2.5 credit points)

In this module students will understand and apply fundamental programming concepts in C and C++ for their high importance as programming languages. They will learn how to write, compile, and debug simple programs in both languages by developing and managing basic projects as well as demonstrating problem-solving skills. Analysis and optimization of simple code for efficiency and performance will also be tackled. Students will also collaborate on introductory projects.

Introduction to R and SPSS (2.5 credit points)

This module introduces students to data analysis for Social Sciences and related disciplines, using SPSS and R in parallel. It develops fundamental data literacy, statistical reasoning, and the ability to manage, analyze, and interpret real-world datasets. The course is designed for beginners and combines graphical and coding-based analytical methods.

Undergraduate Modules

CHOICE (7.5 ECTS credit points)

During the PBS program, students can take part in an undergraduate module to gain valuable insights and experience, as well as transfer credits into their undergraduate program of choice. Students have the option to select one CHOICE module from a variety of study programs. Each student will be assigned an academic advisor to assist them in choosing the best module which will provide them with the chance to experience undergraduate and transfer credits to their desired bachelor program or as a Minor option.

The Undergraduate choice modules available in Spring Semester 2027 are listed below:

School	CHOICE Modules
Computer Science & Engineering	Digital Systems and Computer Architecture
	General Electrical Engineering II
	Mathematical and Physical Foundations of Robotics II
Business, Social & Decision Sciences	Introduction to Finance and Accounting
	Macroeconomics
	General Industrial Engineering
	Introduction to Modern European History
	Essentials of Social Psychology
	Introduction to the Social Sciences II: Media and Society

	Data Structures and Processing
Science	Linear Algebra
Minor Option for all	Global Change and Systems Thinking (Minor in Sustainability)
Majors	Data Structure and Processing (Minor in Data Science)

The descriptions of the above modules are provided in the individual study program Handbooks that can be accessed from Constructor University's website.

Methods (5.0 ECTS credit points)

PBS students may prefer to take a Methods module instead of a CHOICE one if they feel it fits better with their undergraduate program of choice. The available Methods modules for Spring Semester 2027 are listed in the following.

School	Methods Modules
Science	Physics for Natural Sciences

The descriptions of the above modules are provided in the individual study program Handbooks that can be accessed from Constructor University's website.

German Language (2.5 ECTS credit points)

German language abilities foster students' intercultural awareness and enhance their employability. They are also beneficial for securing mandatory internships (between the 2nd and 3rd year) in German companies and academic institutions. Constructor University supports its students in acquiring basic as well as advanced German Skills. The descriptions of the language modules are provided in the "Language Module Handbook" that can be accessed from Constructor University's website. PBS students may also take a **full A1 level** German module (5 ECTS credit points, **a minimum of 5 registrations is needed to offer the module**).

Humanities (2.5 ECTS credit points)

Introduction to Philosophical Ethics

This course will introduce students to some of the key aspects of philosophical ethics, including leading normative theories of ethics as well as some important questions from metaethics and moral psychology. The course will describe ideas that are key factors in ethics and indicate various routes to progress in understanding ethics, as well as some of their difficulties.

Introduction to Visual Culture

The purpose of this course is to explore multiple ways in which images and the visual in general mediate and structure human experiences and practices from more specialized discourses, e.g., scientific discourses, to more informal and personal day-to-day practices, such as self-fashioning in cyberspace. Social and historical contexts affect how we see, as well as what is visible and what is not.

CORE Module Descriptions

Module Name ACADEMIC ENGLISH II B2 CEFR		Module Code PD-C-1002	Level PRE-DEGREE	CP 5
Module Components				
Number	Name		Type	CP
PD-C-1002	Academic English II B2 CEFR		Seminar	5
Module Coordinator Head of Academics	Program Affiliation - Pre Bachelor Semester - CORE module		Mandatory Status Mandatory for Preparation Pathway students	
Entry Requirements <i>Pre-requisites</i> ☒ None	Co-requisites ☒ None	Knowledge, Abilities, or Skills English language skills from high school	Frequency Once a year, Spring semester	Forms of Learning and Teaching - Tutor-led but interactive classes (35 hours) - Tutor-led Tutorials (7 hours) - Directed and independent learning (83 hours)
			Duration One semester	Workload 125 hours
Recommendations for Preparation Preparation prior to commencing the module would include an outline list of the topics to be studied and a supporting reading list.				
Content and Educational Aims The module is designed to help students further develop academic study skills to the standard required for undergraduate study. The development of writing, listening, reading, and speaking skills will include a discussion of essay structure, plagiarism, critical evaluation of specific information, and the development of presentational skills and seminar discussions. Detailed topics are included in the module's syllabus.				
Intended Learning Outcomes - Produce a well-structured written text. - Show controlled use of the conventions in academic writing. - Demonstrate an understanding of a range of written texts of a general and academic nature. - Express themselves with an appropriate level of fluency and accuracy. - Listen to specific information and for gist. - Learn new vocabulary. - Use reading strategies for academic texts. - Participate in and contribute to group discussions. - Take thorough and organized notes while listening to academic lectures. - Acquire oral presentation skills.				
Usability and Relationship to other Modules Academic English II prepares students for studies in other modules as well as in their undergraduate studies.				
Assessment Midterm and Final Assessment Weight: 40% Midterm Assignment + Presentation 60% Final Exam A passing grade of at least 45% is needed for this module.				

Module Name INTENSIVE ACADEMIC ENGLISH B2 CEFR		Module Code PD-C-1005	Level PRE-DEGREE	CP 10
Module Components				
Number	Name		Type	CP
PD-C-1005	Intensive Academic English B2 CEFR		Seminar	10
Module Coordinator Head of Academics	Program Affiliation - Pre Bachelor Semester - CORE module		Mandatory Status Mandatory for English Qualification students	
Entry Requirements <i>Pre-requisites</i> ☒ None	Co-requisites ☒ None	Knowledge, Abilities, or Skills English language skills from high school	Frequency Once a year, Spring semester	Forms of Learning and Teaching - Tutor-led but interactive classes (70 hours) - Tutor-led Tutorials (7 hours) - Directed and independent learning (173 hours)
			Duration One semester	Workload 250 hours
Recommendations for Preparation Preparation prior to commencing the module would include a list of topics to be studied and a supporting reading list.				
Content and Educational Aims The module is designed to develop academic study skills to the standard required for undergraduate study. The development of writing, listening, reading, and speaking skills will include a discussion of essay structure, plagiarism, critical evaluation of specific information, and the development of presentational skills and seminar discussions. Detailed topics are included in the module's syllabus.				
Intended Learning Outcomes By the end of this module, students will be able to: - Successfully apply academic writing conventions - Produce a clear, detailed text on a wide range of subjects - Describe events and processes - Explain a viewpoint on a topic, discussing the advantages and disadvantages of various options - Develop and support an argument - Understand the main ideas of complex texts on both familiar and abstract topics - Interact with a degree of fluency and spontaneity on topics that are both familiar and abstract - Understand documentaries and other recorded material on a variety of social and academic topics - Scan quickly through long and complex texts and identify the relevance of sections for the task at hand - Cite and refer to academic sources in both written and oral form				
Usability and Relationship to other Modules Intensive Academic English prepares students for other modules and their undergraduate studies.				
Assessment Midterm and Final Assessment Weight: 40% Midterm Exam + Assignment 60% Final Exam A passing grade of at least 45% is needed for this module to qualify PBS students for university studies.				

Module Name PURE MATHEMATICS		Module Code PD-C-2002	Level PRE-DEGREE	CP 5.0
Module Components				
Number	Name		Type	CP
PD-C-2002	Pure Mathematics		Seminar	5.0
Module Coordinator Head of Academics	Program Affiliation - Pre Bachelor Semester - CORE module		Mandatory Status Mandatory elective for PBS students	
Entry Requirements Pre-requisites ☒ None	Co-requisites ☒ None	Knowledge, Abilities, or Skills Mathematical skills gained from high school	Frequency Once a year, Spring semester	Forms of Learning and Teaching - Tutor-led but interactive classes (35 hours) - Tutor-led Tutorials (7 hours) - Directed and independent learning (83 hours)
			Duration One semester	Workload 125 hours
Recommendations for Preparation Students should review their mathematical skills from high school to get prepared for the course. Course slides and book chapter are provided beforehand so that students can come prepared to class.				
Content and Educational Aims The module develops the fundamental mathematical skills for students interested in continuing their studies within sciences, engineering, and technology. The module content covers further areas in introductory algebra and calculus. Detailed topics are included in the module's syllabus.				
Intended Learning Outcomes By the end of this module, students will be able to - Perform advanced mathematical operations. - Apply their knowledge in the most efficient way. - Learn how to use mathematics to model and solve everyday problems. - Factor polynomial functions using synthetic division. - Graph polynomial and rational functions and inequalities. - Solve systems of equations using various methods. - Perform matrix operations. - Determine limits of various types of functions. - Derive and perform derivative operations on functions. - Apply differentiation and integration to mathematical problems and models.				
Usability and Relationship to other Modules Pure Mathematics provides students with advanced mathematical tools within disciplines which require developed mathematical knowledge, it also prepares students for the first-year undergraduate modules within the areas of sciences, engineering, and technology.				
Assessment Type: Midterm and Final Exam Weight: 40% Midterm Exam 60% Final Exam A passing grade of at least 45% is needed for this module.				

Module Name INTRODUCTION TO STATISTICS		Module Code PD-C-2006	Level PRE-DEGREE	CP 5
Module Components				
Number	Name		Type	CP
PD-C-2006	Introduction to Statistics			5
Module Coordinator Head of Academics	Program Affiliation - Pre Bachelor Semester - CORE module		Mandatory Status Mandatory elective for PBS students	
Entry Requirements Pre-requisites ☒ None	Co-requisites ☒ None	Knowledge, Abilities, or Skills Basic knowledge in Mathematics	Frequency Once a year, Spring semester	Forms of Learning and Teaching - Tutor-led but interactive classes (35 hours) - Tutor-led Tutorials (7 hours) - Directed and independent learning (83 hours)
			Duration One semester	Workload 125 hours
Recommendations for Preparation Students need to review the mathematical knowledge acquired from high school. Course slides and book chapters are provided beforehand so that students can come prepared to class.				
Content and Educational Aims The module introduces the fundamental aspects of statistical concepts for students interested in continuing their studies in the disciplines within business, economics, and social sciences. The module content covers main areas in statistical analysis, probability, and sampling methods. Detailed topics are included in the module's syllabus.				
Intended Learning Outcomes By the end of this module, students will be able to - Perform basic statistical operations. - Apply their knowledge in the most efficient way through solving problems. - Use statistics in applied case studies. - Analyze and explain statistical data and charts. - Analyze datasets through respective distribution tables and charts. - Use discrete and continuous probability distributions. - Explain the different types of sampling methods and their practicality. - Use tests to evaluate the confidence levels of sampling methods. - Make decisions based on statistical calculations. - Prepare properly for an undergraduate program which includes statistical methods.				
Usability and Relationship to other Modules Foundation Statistics is a CORE module for all students who are interested in continuing their studies in the different areas of business, social science, and humanities. It enables the students with the fundamental knowledge needed in statistics to enhance their performance within relevant modules.				
Assessment Midterm and Final Exam Weight: 40% Midterm Exam 60% Final Exam A passing grade of at least 45% is needed for this module.				

Module Name COMPUTATIONAL THINKING AND CODING		Module Code PD-C-3001	Level PRE-DEGREE	CP 2.5
Module Components				
Number	Name		Type	CP
PD-C-3001	Computational Thinking and Coding		Seminar	2.5
Module Coordinator Head of Academics	Program Affiliation - Pre Bachelor Semester - CORE module		Mandatory Status Mandatory elective for PBS students	
Entry Requirements <i>Pre-requisites</i> ☒ None	Co-requisites ☒ None	Knowledge, Abilities, or Skills Basic understanding of computer hardware and software applications	Frequency Once a year, Spring semester	Forms of Learning and Teaching - Tutor-led but interactive classes (21 hours) - Tutor-led Tutorials (7 hours) - Directed and independent learning (34.5 hours)
			Duration One semester	Workload 62.5 hours
Recommendations for Preparation Students enrolled in this module may lack prior formal instruction in the utilization of computers and software suitable for academic pursuits. Initial classes in this module will afford students the chance to showcase their proficiency and understanding of this subject matter.				
Content and Educational Aims The module equips students with essential computational tools necessary for any major and covers fundamental computing concepts and requirements, catering to students interested in furthering their studies across various subject areas. Detailed topics are included in the module’s syllabus.				
Intended Learning Outcomes By the end of this module, students will be able to - Define the importance of computational thinking. - Improve their ability to develop effective algorithms. - Break down complex problems into smaller, manageable parts. - Identify patterns and regularities in data and processes. - Simplify complex systems by focusing on essential details. - Design step-by-step instructions to solve problems. - Understand variables, data types, and operators. - Control structures: conditionals and loops. - Learn a new language on a basic level. - Design a new programming language on a basic level.				
Usability and Relationship to other Modules The module ‘Computational Thinking and Coding’ is a universal module which relates to all subject areas, as computational thinking and coding is now being used in all disciplines and areas.				
Assessment Midterm and Final Exam Weight: 40% Midterm Written Exam 60% Final Written Exam A passing grade of at least 45% is needed for this module.				

Module Name FUNDAMENTALS OF C AND C++		Module Code PD-C-3002	Level PRE-DEGREE	CP 2.5
Module Components				
Number	Name		Type	CP
PD-C-3002	Fundamentals of C and C++		Seminar	2.5
Module Coordinator Head of Academics	Program Affiliation - Pre Bachelor Semester - CORE module		Mandatory Status Mandatory elective for PBS students	
Entry Requirements <i>Pre-requisites</i> ☒ None	Co-requisites ☒ None	Knowledge, Abilities, or Skills Basic practical skills in programming language	Frequency Once a year, Spring semester	Forms of Learning and Teaching - Tutor-led but interactive classes (21 hours) - Tutor-led Tutorials (7 hours) - Directed and independent learning (34.5 hours)
			Duration One semester	Workload 62.5 hours
Recommendations for Preparation To enhance their programming skills, students are encouraged to revisit and reinforce their computational thinking abilities, which involve problem-solving in abstract manners. In preparation for the class, students are provided with course materials and book chapters, enabling them to come to class fully prepared.				
Content and Educational Aims The module aims to instill confidence in students in their ability to write small programs to accomplish specific tasks. The module covers key aspects of programming languages C and C++. Detailed topics are listed in the module syllabus.				
Intended Learning Outcomes By the end of this module, students will be able to - Understand and apply fundamental programming concepts in C and C++. - Write, compile, and debug simple programs in both languages. - Use basic control structures such as loops and conditionals effectively. - Implement elementary object-oriented programming principles in C++. - Develop and manage basic projects, demonstrating problem-solving skills. - Gain familiarity with using integrated development environments (IDEs) for C and C++. - Analyze and optimize simple code for efficiency and performance. - Employ fundamental data structures such as arrays and linked lists. - Understand and apply basic pointers and memory management techniques. - Collaborate on introductory coding projects using version control systems.				
Usability and Relationship to other Modules Fundamentals of C and C++ is broadly relevant, as part of essential skills across subject areas and disciplines in Technology.				
Assessment Midterm and Final Exam Weight: 40% Midterm Written Exam 60% Final Written Exam A passing grade of at least 45% is needed for this module.				

Module Name INTRODUCTION TO R AND SPSS		Module Code PD-C-3006	Level PRE-DEGREE	CP 2.5
Module Components				
Number	Name		Type	CP
PD-C-3006	Introduction to R and SPSS		Seminar	2.5
Module Coordinator Head of Academics	Program Affiliation - Pre Bachelor Semester - CORE module		Mandatory Status Mandatory elective for PBS students	
Entry Requirements <i>Pre-requisites</i> ☒ None	Co-requisites ☒ None	Knowledge, Abilities, or Skills Basic understanding of data analysis	Frequency Once a year, Spring semester	Forms of Learning and Teaching - Tutor-led but interactive classes (21 hours) - Tutor-led Tutorials (7 hours) - Directed and independent learning (34.5 hours)
			Duration One semester	Workload 62.5 hours
Recommendations for Preparation Students enrolled in this module may have little prior experience with statistical software or quantitative data analysis. To prepare, they are encouraged to review basic mathematics and spreadsheet skills and are provided with sample datasets and reading materials so they can come to the class ready to work hands-on in R and SPSS.				
Content and Educational Aims The module equips students with essential statistical computing tools necessary for any major and covers fundamental data analysis concepts and requirements using R and SPSS, catering to students interested in furthering their studies across various subject areas. Detailed topics are included in the module's syllabus.				
Intended Learning Outcomes By the end of this module, students will be able to - Define the importance of computational thinking. - Improve their ability to develop effective algorithms. - Break down complex problems into smaller, manageable parts. - Identify patterns and regularities in data and processes. - Simplify complex systems by focusing on essential details. - Design step-by-step instructions to solve problems. - Understand variables, data types, and operators. - Apply inferential techniques: correlation, t-test, and regression. - Learn a statistical software environment on a basic level. - Interpret and communicate statistical output on a basic level.				
Usability and Relationship to other Modules The module 'Introduction to R and SPSS' is a universal module which relates to all subject areas, as statistical computing and data analysis is now being used in all disciplines and areas.				
Assessment Midterm and Final Exam Weight: 40% Midterm Written Exam 60% Final Written Exam A passing grade of at least 45% is needed for this module.				



↑ Campus Center
Research II, III
E.ON Energy
Laboratory
Laboratory II
Alfried Krupp College
E, F
East / West Hall
South Hall
BIGSSS
Student Activities
Center
Colleges
Sports Facilities

← TheaterSpace
Cinema
College Nordmetall



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