

International Foundation Year

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BASIC INFORMATION

Program Name: International Foundation Year (IFY)

Type: Pre-degree

Level: Level 0 (Pre-university)

Exit award: International Foundation Year Certificate (IFYC)

Award notes: The Program is offered in three subject areas: Technology, Science

and Society at Level O. Successful completion of the IFY program within the two different pathways Qualification and Orientation is recognized by Constructor University Bremen as an element in securing progression to several specified undergraduate degree programs. Students within the Qualification pathway are also required

to pass the TestAS exam for progression.

Modes of study: All students will be full-time students. Teaching language 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	Standard entry requirements					
International Foundation Year Certificate (IFYC)	CEFR B1/5.0 IELTS (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

THE CONSTRUCTOR UNIVERSITY BREMEN EDUCATIONAL CONCEPT

Constructor University Bremen (CUB) aims at educating students for both an academic and a professional career, putting an emphasis on four fundamental objectives: academic quality, self-development and personal growth, internationality, and the ability to succeed in the working world (employability). Hence, undergraduate study programs at CUB offer a comprehensive and structured approach to prepare students for graduate education as well as career success by combining disciplinary depth and interdisciplinary breadth supplemented with skills education and extra-curricular elements.

In this context, it is CUB's aim to educate talented young people from all over the world, regardless of nationality, religion, and material prerequisites, to become citizens of the world who can take responsible roles for a democratic, peaceful, and sustainable development of the societies they live in. This is achieved by employing high levels of teaching quality as well as manageable study loads and supportive curricular conditions. Undergraduate study programs including study abroad components convey academic knowledge as well as the ability to interact positively with other individuals and groups in culturally diverse environments. The ability to succeed in the working world is a core objective both in terms of the actual disciplinary subject matter and social skills coupled to intercultural competence. Study-program-specific and specialization modules provide the necessary depth, interdisciplinary offerings and minor options provide breadth, while university-wide general foundation and methods modules, German language courses, and an extended internship period strengthen the employability of students. The concept of living and learning together on an international campus with many cultural and social activities supplements this education. Additionally, CUB offer professional advising and counselling as part of its guidance services.

CUB's educational concept is appreciated both nationally and internationally. While the university has consistently achieved top marks over the last decade in Germany's most comprehensive and detailed university ranking by the Centre for Higher Education (CHE), it has also been listed by the renowned Times Higher Education (THE) magazine as one of the top 300 universities worldwide in 2020. The THE Ranking is considered as one of the most widely observed university rankings. It is based on five major indicators: research, teaching, research impact, international orientation, and the volume of research income from industry.

PROGRAM - SPECIFIC EDUCATIONAL AIMS

The International Foundation Year (IFY) is a pre-degree preparatory program, enabling young students from all over the world to enhance their English language capabilities,

develop study skills appropriate to a Higher Education environment and acclimate to living and studying in another country where cultural context is very different from their own. Alongside language and skill development, students working towards the International Foundation Year Certificate are also able to study content modules in the subject area directly related to undergraduate programs onto which they wish to progress. They are therefore able to move onto first year degree studies with increased confidence in their English language skills, university study skills and subject knowledge. Students will also be exposed to the fundamentals of coding as an important aspect of the modern job market. The TestAS (www.testas.de) entrance exam is taken during the International Foundation Year if needed. The IFY program also includes an elective Career Development module that supports students with study skills and career guidance to assist them in their decision of study direction.

QUALIFICATION AIMS

The IFY program at Constructor University Bremen (CUB) aims to help students:

- develop academic reading, writing, and reasoning skills by offering English academic literacy;
- improve mathematical competence by providing intensive mathematics and statistics training;
- bolster foundational knowledge required for their academic discipline of choice;
- train for the TestAS exam:
- develop coding and computer literacy skills;
- develop knowledge and understanding of specialized subject areas;
- recognize what is expected of them in a university environment;
- take part in some modules offered in the undergraduate program that would best suit their interests, with possibility of credit transfer;
- expand their academic and personal qualifications through advising and career development customized to the needs of an IFY student at CUB;
- broaden socio-cultural horizons and intercultural skills through study trips, on-site visits, and involvement in the diverse international campus community.

INTENDED LEARNING OUTCOMES

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

- understand what is expected of them in a university environment;
- choose a study direction they would like to pursue;
- apply improved academic English thinking, reading and writing skills in an academic context;
- use improved mathematical skills to solve applied problems;
- use digital devices to create, gather, analyse and present information;
- learn and work in an intercultural and diverse environment;
- reflect on their personal and professional development.



PROGRAM STRUCTURE

All IFY students study a combination of CORE and SUBJECT modules. CORE modules include English, Mathematics, Career Development and Computational Thinking & Coding. Furthermore, the IFY students follow one of the following two pathways (Qualification or Orientation pathway), depending on their academic status and personal development goals:

A | Qualification Pathway

The students who want to pursue an undergraduate program of choice at CUB but are not academically qualified for direct entry are guided onto the Qualification Pathway. The IFY program offers three subject areas to choose from: Technology, Science and Society. The Qualification pathway includes two subject modules within a subject area (one module per semester) which prepares students with the academic skills needed for their direction of study. Students will also receive training sessions for the TestAS qualification exam they need to complete for their direction of studies. They will be guided by the academic staff in order to work towards the qualification requirements within their individual study direction to ensure guaranteed admission to the university's undergraduate programs. These subject areas will provide students with a route to a degree at Constructor University Bremen. Students also have the unique opportunity to take part in relevant undergraduate modules of choice to gain experience and/or transfer credits, these modules can be part of their major or minor curriculum.

B | Orientation Pathway

The students who are unsure about what to study and would like to explore more than one subject area to get some insight on the right undergraduate study program choice are guided onto the Orientation Pathway. The IFY program offers three subject areas to choose from: Technology, Science and Society. The Orientation Pathway enables the selection of SUBJECT modules in different subject areas (one module per semester) preparing them with the academic skills needed for their direction of study while providing them with the opportunity to explore between subject direction. These subject areas will provide students with a route into a degree at Constructor University Bremen guided by the academic staff to assist them in their decision of study direction. Students also have the unique opportunity to take part in undergraduate modules of choice to gain experience or transfer credits. Students have the freedom to choose any first-year modules which could contribute to their major or minor.

TEACHING, LEARNING AND ASSESSMENT STRATEGIES

The IFY program is implementing 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 IFY students are provided with a highly supportive and academically challenging environment to develop their English language and university study skills. The predegree preparatory program provides not only core preparatory skills, but also subject-specific modules related to the students' intended degree choices.
- **B** | Students will benefit from a less formal teaching approach, involving greater interactivity within classes and between students and instructors more questioning of received opinion and a significant step towards establishing the students as autonomous learners. The students' confidence is boosted through working in discrete and small teaching groups, by the promotion of student participation in a supportive and encouraging environment, and by devoting time in formal classes to reinforcement of material studied.
- **C** | Cultural acclimation to a higher education environment is facilitated through encouragement to participate in the wider community of both CUB and Bremen itself.
- D | The IFY program aims to cater for both students who are sure of the degree subject they wish to follow and those who are still undecided. For the first group the different subject areas offer subject focused modules over two semesters, which provides direct preparation for the chosen degree program. For those still uncertain there is the opportunity of taking IFY modules from two different subject areas during the two semesters of the International Foundation Year.
- **E** | Alongside the modules, students may engage in a Career Development module, which provides ample opportunity for students to be introduced to and reflect on the requirements of study in a higher education environment. The module focusses on academic and life skills of a wider purpose, which helps prepare students not only for their degree studies but also gain a jump start on their career development, professional skills, and gain a unique understanding of the international job market.
- **F** | Regular tutorial sessions provide an opportunity for students to reflect on their study progress, for the instructor to monitor their progress and provide any additional support the students might need to strengthen weaker knowledge areas.
- **G** | A range of modes of assessment are applied to include assignments, group and individual presentations, projects and interim tests, in order to replicate the wider university experience. Midterm and final module assessments provide the contribution to the final module grade.
- **H** | Policies governing IFY modules are included in the 'Rules and Regulations', which will be presented to the students at the beginning of the academic year. Policies governing UGE 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 IFY program follow a set of regulations appropriate to a Level 0 program but modelled to CUB's undergraduate students. These regulations are governed by the policies for pre-degree students that can be found on the CUB website under 'Registrar

Services'. Variations are only introduced to cover the requirements of a pre-degree program, particularly around reassessment opportunities.

To progress from the program directly onto CUB's degree programs, students will need to pass all IFY modules with a minimum of 45%. In addition, students enrolled on the Qualification Pathway will need a cumulative standard TestAS score of 190 points, as they do not have an Abitur or equivalent qualification. With the TestAS score the final examination of the second semester subject module within the different subject areas will serve as the "Entrance Examination" for Admission to Constructor University Bremen qualified abroad, according to the Bildungsausländerhochschulzugangsverordnung (BAHZV). This entrance requirement is governed by the entrance examination for university admission that can be found on the CUB website under 'Registrar Services'. As part of the entrance requirement for the International Foundation Year program students need to have achieved the English language requirement for university entrance.

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 B1 level of the European Framework may apply for the International Foundation Year. 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 International Foundation Year 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
- Proof of English Language Proficiency (minimum score of 65 on the TOEFL iBT / 5.0 on the IELTS (UK) / 46 on the Pearson PTE Academic or the Cambridge Certificate (FCE) / 90 on the Duolingo English test)

Please note for the Fall 2023 intake: Students who require a visa for Germany should apply by June 15th since the visa process can take up to two months. The application deadline for EU students is August 1st. Applications are evaluated on a rolling basis.

MEET THE IFY TEAM

THE INTERNATIONAL FOUNDATION YEAR TEAM AT CONSTRUCTOR UNIVERSITY BREMEN

The core team will support students throughout the academic year with both academic and non-academic concerns.

Core Team



Romy Skade Coordinator International Foundation Year



Landers Head of International Foundation Year

Hanri



Dr. Bassem Bassil Head of Academic Development Academic Advisor Science Subject-Area

The IFY Faculty will support students throughout the academic year by means of academic advising, teaching, tutoring and provide guidance within their subject specific field.

Faculty



Tamara von Drathen

IFY Faculty Academic Advisor Society Subject-Area

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Holm **Hofmann**

IFY Faculty **English and German** Lecturer hhofmann@constructor.university



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IFY Faculty Academic Advisor Technology Subject-Area mukhalid@constructor.university



Stephanie Rahi

IFY Faculty TestAS Lecturer & Test Centre Representative

CURRICULAR STRUCTURE

OVERVIEW

The IFY program offers CORE modules which are mandatory for all students and SUBJECT modules, which are mandatory elective. The IFY students will follow one out of the two pathways according to their academic status: Qualification Pathway and Orientation Pathway.

In the Qualification Pathway, the students take all CORE and SUBJECT modules belonging to the same subject-area over two semesters whiles training for the TestAS external exam will also be provided. In the Orientation Pathway the students may change subject areas between semesters and take the respective CORE and SUBJECT modules. The chosen first semester modules do not postulate any restrictions for the second semester choices unless they need prerequisites. The subject areas in the IFY program are Technology, Science and Society. The modules in the IFY program ranges from 2.5-5 ECTS credit points (CP). A total of five core modules and two subject specific modules in each pathway can be achieved. Additionally, two undergraduate modules and/or two language modules are available by choice and transferable per academic year.

All these modules are delivered and assessed within each semester and are available for compensation and re-assessment in line with the regulations covering study at Level 0.

CORE MODULES

English & Academic Literacy I & II (5.0 credit points each)

The language learning content is skills based and maps against IELTS level descriptors for Band 6 in Writing, Reading, Listening and Speaking. In each of their two semesters all students take a module in which the focus is on greater fluency in English language skills and improved academic literacy skills. In the first semester, the module focuses on building a strong foundation of academic English proficiency and in the second semester, students are introduced to the scientific approach to study with an emphasis on higher-level skills such as analysis, synthesis, critical thinking, and evaluation. The students will undergo an English proficiency Placement Test at the beginning of the semester to identify any language deficiencies. Respective students will be offered an additional English training course parallel to the module.

Basic/Advanced Mathematics (5.0 credit points each)

These modules revise high school material in mathematics and strengthen the understanding of major topics required for successful undergraduate study. Students are placed in one of the modules, Basic Mathematics or Advanced Mathematics, delivered in Semester one of the Program, depending on their study direction and performance on a Mathematics Placement Test upon arrival. The intention is to consolidate their basic skills before tackling the subject-specific Mathematics modules in the second semester.

Pure Mathematics (5.0 credit points)

This second semester module is a follow-up for 'Advanced Mathematics' and is a mandatory module for students in the subject-area 'Science' and 'Technology'. Since developed mathematical skills are essential for students in these subject areas, 'Pure Mathematics' provides them with the essential knowledge and tools to be properly prepared for the respective undergraduate degrees at Constructor University Bremen. The course covers main topics in introductory algebra and calculus, and the study sessions include extensive problem solving as well as tutorials.

Foundation Statistics (5.0 credit points)

This second semester module is essential for students continuing their studies within the subject-area 'Society', particularly in the areas of business and management, logistics, and social sciences and humanities. Fundamental knowledge in statistics is essential for degrees within these areas, and this is what the module 'Foundation Statistics' provides for students in this specific subject-area. The module covers main topics in statistical analysis and probability, sampling, and confidence limits, as well as correlation and regression. The study sessions include extensive application of statistical concepts on applied models.

Computational Thinking and Coding I & II (2.5 credit points each)

This module is delivered in the first and second semester of the International Foundation Year. Students will analyse 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. Learners get information about modern and in-demand programming languages in the world. It further helps in experimenting, drawing, modelling, designing, and working with digital tools and includes basic concepts of coding.

TestAS Training I & II (2.5 credit points)

This module is designed to prepare and inform students about the TestAS external exam, particularly those students who are not academically qualified for direct entry to Constructor University Bremen and enrolled in the IFY Qualification Pathway. During the IFY program students have the unique opportunity to take part in the external TestAS exam TWICE during the academic year. This exam qualifies students within their direction of study along with core skills needed for entry to tertiary education in Germany.

Career Development (2.5 credit points)

The module is designed to support and guide students within their study direction while focusing on the potential career paths it may leads to. Students have the unique opportunity

to start their career development during their Foundation Year by meeting industry professionals, gaining valuable networking and professional skills to jump-start their career path while studying. It further enables students to attain the needed study skills to succeed at university, while focusing on their individual and cultural awareness, thus supporting them to flourish at Constructor University Bremen and within the global working environment.

MODULES BY SUBJECT AREA

Subject Area TECHNOLOGY

Computer Systems (5.0 credit points)

In this module, students will be introduced to the structure and components of computer systems, as well as the essential components and responsibilities of operating systems. By gaining knowledge of how computers operate, including Windows and Linux operating systems, students will establish a solid foundation for their degree studies.

Fundamentals of Programming with Python 3 (5.0 credit points)

In this module, students are introduced to the fundamentals of programming. They will be provided with an overview of the core principles of the Python 3 programming language and will have the opportunity to enhance their programming skills by actively coding with Python 3. The teaching methodology will incorporate theoretical explanations and troubleshooting sessions, but a substantial portion of the module will be dedicated to hands-on practical work, allowing students to actively learn and engage with Python 3.

Subject Area SCIENCE

Foundation Chemistry (5.0 credit points)

Chemistry is an essential discipline for any student wanting to continue their studies in natural, physical, and biological sciences at CUB. The first semester module 'Foundation Chemistry' hence provides the students within the subject area 'Science' with an overall and basic knowledge of the various fields within chemistry. Topics covered include fundamental aspects of general, analytical, inorganic, physical, and nuclear chemistry. The study sessions will be supplemented with a first overview of research methods within chemistry.

Foundation Physics (5.0 credit points)

Alongside chemistry, physics is a complementary discipline in science, and a basic knowledge of relevant topics in physics is a requirement for students to start their undergraduate studies at CUB within the different scientific degrees. The second semester module 'Foundation Physics' provides the students with such knowledge, and covers areas within mechanics, material science, introductory electronics, and optics. Same as with 'Foundation Chemistry', this module also gives a first impression of research within physics.

Subject Area SOCIETY

Foundation Business and Management (5.0 credit points)

The module introduces students to the internal and external context of business practice and management. It delves into key business aspects including strategic management, marketing, human resources, crisis management, globalization, and social responsibility. It also aims to provide students with the appropriate foundation of business theory and

concepts that will enable them to be successful in their later related undergraduate studies in the fields of business, industrial engineering, or social sciences.

Introduction to Social Sciences (5.0 credit points)

The overall aim of this module is to provide students with a general introduction to social sciences with a focus on the areas of sociology, economics, politics, and international relations. It aims to provide students with the appropriate foundation in social sciences theories and concepts as well as their applicability in relation to the fields of business, industrial engineering, and social sciences.



SCHEMATIC STUDY PLAN

		Qualification pathway – choose one specific subject area						
	Technology		Science		Society			
	Academic English & Literacy I	m, 5.0 CP	Academic English & Literacy I	m, 5.0 CP	Academic English & Literacy I	m, 5.0 CP		
ter	Advanced Mathematics	m, 5.0 CP	Advanced Mathematics	m, 5.0 CP	Basic or Advanced Mathematics	me, 5.0 CP		
Fall semester	Computational Thinking & Coding I	m, 2.5 CP	Computational Thinking & Coding I	m, 2.5 CP	Computational Thinking & Coding I	m, 2.5 CP		
Fall	TestAS Training I	m, 2.5 CP	TestAS Training I	m, 2.5 CP	TestAS Training I	m, 2.5 CP		
	Computer Systems	m, 5.0 CP	Foundation Chemistry	m, 5.0 CP	Foundation Business and Management	m, 5.0 CP		
	UGE Choice or UGE Language	e, 2.5-7.5 CP	UGE Choice or UGE Language	e, 2.5-7.5 CP	UGE Choice or UGE Language	e, 2.5-7.5 CP		
	Academic English & Literacy II	m, 5.0 CP	Academic English & Literacy II	m, 5.0 CP	Academic English & Literacy II	m, 5.0 CP		
L	Pure Mathematics	m, 5.0 CP	Pure Mathematics	m, 5.0 CP	Foundation Statistics	m, 5.0 CP		
Spring semester	Coding & Computational Thinking II or Career Development	me, 2.5 CP	Coding & Computational Thinking II or Career Development	me, 2.5 CP	Coding & Computational Thinking II or Career Development	me, 2.5 CP		
pring s	TestAS Training II	e, 0.0 CP	TestAS Training II	e, 0.0 CP	TestAS Training II	e, 0.0 CP		
S	Fundamentals of Programming with Python 3	m, 5.0 CP	Foundation Physics	m, 5.0 CP	Introduction to Social Sciences	m, 5.0 CP		
	UGE Choice or	e, 2.5-7.5 CP	UGE Choice or	e, 2.5-7.5 CP	UGE Choice or	e, 2.5-7.5 CP		

	Orientation pathway – choose up to two subject areas						
	Technology		Science		Society		
	Academic English & Literacy I	m, 5.0 CP	Academic English & Literacy I	m, 5.0 CP	Academic English & Literacy I	m, 5.0 CP	
ter	Advanced Mathematics	m, 5.0 CP	Advanced Mathematics	m, 5.0 CP	Basic or Advanced Mathematics	me, 5.0 CP	
Fall semester	Computational Thinking & Coding I	m, 2.5 CP	Computational Thinking & Coding I	m, 2.5 CP	Computational Thinking & Coding I	m, 2.5 CP	
Fall	Computer systems	m, 5.0 CP	Foundation Chemistry	m, 5.0 CP	Foundation Business and Management	m, 5.0 CP	
	UGE Language	e, 2.5 CP	UGE Language	e, 2.5 CP	UGE Language	e, 2.5 CP	
	UGE Choice	e, 7.5 CP	UGE Choice	e, 7.5 CP	UGE Choice	e, 7.5 CP	
	Academic English & Literacy II	m, 5.0 CP	Academic English & Literacy II	m, 5.0 CP	Academic English & Literacy II	m, 5.0 CP	
L	Pure Mathematics	m, 5.0 CP	Pure Mathematics	m, 5.0 CP	Foundation Statistics	m, 5.0 CP	
Spring semester	Coding & Computational Thinking II or Career Development	me, 2.5 CP	Coding & Computational Thinking II or Career Development	me, 2.5 CP	Coding & Computational Thinking II or Career Development	me, 2.5 CP	
pring s	Fundamentals of Programming with Python 3	m, 5.0 CP	Foundation Physics	m, 5.0 CP	Introduction to Social Sciences	m, 5.0 CP	
<i>S</i>	UGE Language	e, 2.5 CP	UGE Language	e, 2.5 CP	UGE Language	e, 2.5 CP	
	UGE Choice	e, 7.5 CP	UGE Choice	e, 7.5 CP	UGE Choice	e, 7.5 CP	

MODULE DESCRIPTIONS

Core Modules (1st semester)

Module Name			Module Code	Level	ECTS			
ACADEMIC E	NGLISH AN	D LITERACY I		FOUNDATION	5.0			
Module Compon	Module Components							
Number	Name			Туре	ECTS			
	Seminar style	classes		Tutor-led	5.0			
Module Coordinator IFY Head of Academics		ation Foundation Year le Semester One	Mandatory State Mandatory for all students					
Entry Requirements Pre-requisites ⊠ High School Diploma □ None	Co- requisites ⊠ English Training □ None	Knowledge, Abilities, or Skills Basic English language and academic study skills	Frequency Once a year, Fall semester	Forms of Learni Teaching Tutor-led but i classes (35 ho Tutor-led Tuto hours) Directed and independent le (83 hours)	nteractive ours) orials (7			
			Duration One semester	Workload 125 hours				

Recommendations for Preparation

Students taking this module will be tested for English level at the start of the semester for the possibility of an additional training course. Preparation prior to arrival would include an outline list of the topics to be studied during the module and a supporting reading list.

Content and Educational Aims

This is the first semester mandatory CORE module for all IFY students. The aim of this module is the development of the English skills of students joining the IFY program with the aim of successful continuation onto the second semester. Through this module the students are made aware of the critical importance of English competence in the context of their on-going academic studies. Detailed topics are included in the module's syllabus.

Intended Learning Outcomes

By the end of this module, students will be able to

- Produce well-structured written text.
- Show controlled use of the conventions used in academic writing.
- Demonstrate an understanding of a range of written texts which are of a general and academic nature.
- Express themselves with a degree of fluency and accuracy.
- Listen for 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 & Literacy I is a CORE module studied during the first semester by all students joining the IFY program. It prepares students with the proper English knowledge for studies in other modules as well as in their undergraduate studies.

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Assessment

Midterm and Final Assessment

Scope: Topics studied as covered by the Learning Outcomes Weight: 40% Midterm Exam (listening, reading, writing)

60% Final Written Exam



Module Name			Module Code	Level	ECTS			
BASIC MATH	IEMATICS			FOUNDATION	5.0			
Module Compon	Module Components							
Number	Name			Type	<i>ECTS</i>			
	Seminar style cla	asses		Tutor-led	5.0			
Module Coordinator IFY Head of Academics	Program Affiliat International F CORE module	oundation Year	Mandatory Status Mandatory prerequisite for 'Foundation Statistics'					
Entry Requirements Pre-requisites □ High School Diploma □ None	Co-requisites □ ⊠ None	Knowledge, Abilities, or Skills Basic knowledge of Mathematics on the high school level	Frequency Once a year, Fall semester	Forms of Learni Teaching Tutor-led but is classes (35 hours) Tutor-led Tutor hours) Directed and independent let (83 hours)	interactive ours) orials (7			
			Duration One semester	Workload 125 hours				

Students should review their basic 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

This is the first semester Mathematics CORE module for students of the 'Society' study subjects. It is also a prerequisite course for 'Foundation Statistics'. It introduces the fundamental and basic aspects of mathematical concepts required for students interested in continuing their studies within business and humanities. The module content covers main areas of introductory algebra. 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 mathematical operations.
- Apply their knowledge in the most efficient way through solving exercises.
- Learn how to use mathematics to model and solve everyday problems.
- Understand the concepts of rational and irrational numbers.
- Solve linear and quadratic equations.
- Graph linear equations and inequalities.
- Know the basics of probability.
- Develop and factorize polynomial and rational expressions.
- Solve systems of linear equations.
- Work with roots and radicals.

Usability and Relationship to other Modules

Basic Mathematics prepares students for the following Mathematics CORE module 'Foundation Statistics', it is also providing the fundamental mathematical tools for other modules within the 'Society' subject area.

Assessment

Midterm and Final Assessment

Scope: Topics studied as covered by the Learning Outcomes

Weight: 40% Midterm Written Exam 60% Final Written Exam

Module Name ADVANCED	MATHEMATIC	CS	Module Code	Level FOUNDATION	ECTS 5.0
Module Compor	nents				
Number	Name			Type	ECTS
	Seminar style cl	asses		Tutor-led	5.0
Module Coordinator IFY Head of Academics	Program Affilia International I CORE module	oundation Year	Mandatory Status Mandatory prerequisite for 'Pure Mathematics'		
Entry Requirements Pre-requisites ☑ High School Diploma □ None	Co-requisites □ ⊠ None	Knowledge, Abilities, or Skills Advanced knowledge of Mathematics on the high school level	Frequency Once a year, Fall semester	Forms of Learni Teaching Tutor-led but classes (35 hours) Tutor-led Tutor hours) Directed and independent let (83 hours)	interactive ours) orials (7
			Duration One Semester	Workload 125 hours	

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

This is the first semester Mathematics CORE module for students of the 'Technology' and 'Science' subject areas. It is also a prerequisite course for 'Pure Mathematics'. It introduces the needed aspects and requirements of mathematical knowledge for students interested in continuing their studies within sciences, engineering, and technology. The module content covers main 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 through solving exercises.
- Learn how to use mathematics to model and solve everyday problems.
- Solve and graph linear and quadratic equations and inequalities.
- Identify polynomial functions.
- Factor quadratic functions using different methods.
- Explain roots, exponentials, and logarithms.
- Use the unit circle approach to explain and graph trigonometric functions.
- Work with trigonometric equations and identities.
- Perform vector operations.

Usability and Relationship to other Modules

Advanced Mathematics prepares students for the following Mathematics CORE module 'Pure Mathematics', it is also providing the fundamental mathematical tools for other modules within the 'Science' and 'Technology' subject areas.

Assessment

Midterm and Final Assessment

Scope: Topics studied as covered by the Learning Outcomes

Weight: 40% Midterm Written Exam

60% Final Written Exam

Module Name COMPUTAT	IONAL THII	NKING AND	Module Code	Level FOUNDATION	ECTS 2.5		
	CODING I Module Components						
Number	Name			Туре	ECTS		
	Seminar style	classes		Tutor-led	2.5		
Module Coordinator IFY Head of Academics		iation al Foundation Year ule Semester One	Mandatory Status Mandatory for all IFY students				
Entry Requirements Pre-requisites ☐ High School Diploma ☐ None	Co- requisites □ ⊠ None	Knowledge, Abilities, or Skills Basic understanding of computer hardware and software/applications	Once a year, Fall semester	Forms of Learni Teaching Tutor-led but classes (17.5 h Tutor-led Tutorhours) Directed and independent let (41.5 hours)	interactive nours) prials (3.5		
			Duration One semester	Workload 62.5 hours			

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

This is the first-semester mandatory CORE module for all IFY students. It is also a prerequisite course for the CTC II module and equips students with essential computational tools necessary for any major. It 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 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.
- Understand and apply a new (programming) language on a basic level.
- Design a new programming language on a basic level.

Usability and Relationship to other Modules

Computational Thinking and Coding is a CORE module studied in the first semester by students joining the IFY program. It 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 Assessment

Scope: Topics studied as covered by the Learning Outcomes

Weight: 40% Midterm Written Exam

60% Final Written Exam

Module Name TESTAS TRAINING I			Module Code	Level FOUNDATION	ECTS 2.5		
Module Compon	Module Components						
Number	Name			Type	ECTS		
	Training Session	ıs		Tutor-led	2.5		
Module	Program Affiliat	ion		Mandatory State	us		
Coordinator IFY Head of Academics	International FCommon modCORE module	ule for all subject areas	Mandatory for students on the 'Qualification' pathway				
Entry Requirements Pre-requisites ☑ High School Diploma □ None	Co-requisites □ ⊠ None	Knowledge, Abilities, or Skills Basic high school skills	Once a year, Fall semester.	Forms of Learni Teaching Tutor-led train hours) Directed and independent to hours)	ing (17.5		
			Duration One semester	Workload 62.5 hours			

Students should review their overall high school knowledge as a general preparation for the module.

Content and Educational Aims

This module prepares all students for the TestAS exam which is a needed component for admissions to undergraduate studies at Constructor University Bremen.

Intended Learning Outcomes

By the end of this module, students will be able to:

- Prepare properly for the TestAS entrance exam.
- Get informed about the different modules and subjects within the test.
- Practice TestAS questions through training sessions.
- Review the main information needed for the TestAS exam.
- Train for the core module tests.
- Train for the subject-specific module tests in the different areas according to subject direction.

Usability and Relationship to other Modules

The TestAS Training module is essential for 'Qualification' students of all subject areas in order to pass the entrance exam to undergraduate studies at Constructor University Bremen.

Assessment

The TestAS consists of two examination parts: The Core Module tests the general aptitude to study; the Subject Modules the field of study-specific aptitude.

A combined Standard Score of a minimum of 190 points is needed to be able to move on to degree studies at Constructor University Bremen.



Core Modules (2nd semester)

Module Name			Module Code	Level	ECTS		
ACADEMIC E	NGLISH AND	LITERACY II		FOUNDATION	5.0		
Module Compon	Module Components						
Number	Name			Type	<i>ECTS</i>		
	Seminar style cla	asses		Tutor-led	5.0		
Module Coordinator IFY Head of Academics	Program Affiliat International F CORE module	oundation Year	Mandatory Status Mandatory for all IFY students				
Entry Requirements Pre-requisites	Co-requisites □ ⊠ None	Knowledge, Abilities, or Skills English language skills from Academic English and Literacy I	Frequency Once a year, Spring semester	Forms of Learni Teaching Tutor-led but in classes (35 hours) Tutor-led Tutor hours) Directed and independent let (83 hours)	interactive ours) orials (7		
			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

This is the second semester mandatory CORE module for all IFY students. It is designed for students to develop academic study skills to the standard required for undergraduate study. The module will include a discussion of essay structure, plagiarism, criticality for 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

- Apply reading strategies to read extended academic texts.
- Make decisions on usefulness of content and extract useful information.
- Write extended academic texts.
- Listen interactively in classes and lectures.
- Participate in academic discourse as both an information provider and gatherer.
- Develop critical reading skills and interpret information.
- Synthesize information from listening and reading texts.
- Successfully participate in seminar discussion.
- Demonstrate basic research, speaking and presentational skills.
- Cite and refer to academic sources in written and oral form.
- Expand vocabulary to be applied in an academic context.

Usability and Relationship to other Modules

Academic English & Literacy II is a CORE module studied during the second semester by all students joining the IFY program. It prepares student with the proper English knowledge for studies in other modules as well as in their undergraduate studies.

Assessment

Midterm and Final Assessment

Scope: Topics studied as covered by the Learning Outcomes

Weight: 40% Presentation and Handout | 60% Final Written Exam

Module Name	Module Name				ECTS	
FOUNDATION ST	ATISTICS		FOUNDATION	5.0		
Module Components						
Number	Name			Type	<i>ECTS</i>	
	Seminar style c	lasses		Tutor-led	5.0	
Module Coordinator	Program Affilia	ition		Mandatory Stat	us	
IFY Head of Academics		International Foundation YearCORE module Semester Two			'Society'	
Entry Requirements Pre-requisites □ Basic Mathematics/Advance Mathematics □ None	Co-requisites □ ⊠ None	Knowledge, Abilities, or Skills Mathematical knowledge acquired from the prerequisite module 'Basic Mathematics'	Frequency Once a year, Spring semester	Forms of Learni Teaching Tutor-led but interactive cla hours) Tutor-led Tuto hours) Directed and independent lo (83 hours)	sses (35 orials (7	
			Duration One semester	Workload 125 hours		

Students need to review the mathematical knowledge acquired from the prerequisite course 'Basic Mathematics' or Advance Mathematics. Course slides and book chapters are provided beforehand so that students can come prepared to class.

Content and Educational Aims

This is the second semester Mathematics CORE module for students of the 'Society' study track. It introduces the fundamental aspects and basic requirements 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 and correlation 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.
- Improve presentation skills of statistical projects.
- Analyse 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.
- Correlate data variables and analyse their regression.
- 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 needed knowledge in statistics, to enhance their performance within modules that require such knowledge, like economics for example. Nowadays, statistics is used in almost all social and natural scientific disciplines.

Assessment

Midterm and Final Assessment

Scope: Topics studied as covered by the Learning Outcomes

Weight: 40% Midterm Assignment 60% Final Written Exam

Module Name			Module Code	Level	ECTS
PURE MATH	EMATICS			FOUNDATION	5.0
Module Compor	nents				
Number	Name			Type	ECTS
	Seminar style cl	asses		Tutor-led	5.0
Module Coordinator IFY Academic Director	Program Affiliat International F CORE module	oundation Year	Mandatory Status Mandatory for subject areas 'Science' and 'Technology'		
Entry Requirements	Co requisites	Knowledge, Abilities, or	Frequency Once a year,	Forms of Learni Teaching	
✓ Advanced Mathematics ☐ None	Skills ☐ Advanced ☐ Mathematics ☐ None ☐ None ☐ Mathematic ☐ gained from ☐ prerequisite ☐ 'Advanced	Skills Mathematical skills gained from the prerequisite course	Spring semester	 Tutor-led but classes (35 ho Tutor-led Tuto hours) Directed and independent let (83 hours) 	ours) orials (7
		iviauiemaucs	Duration One semester	Workload 125 hours	

Students should review their mathematical skills from 'Advanced Mathematics' 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

This is the second semester Mathematics CORE module for students of the 'Technology' and 'Science' subject area. It follows the prerequisite course 'Advanced Mathematics' and 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 through solving exercises.
- 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 equation using various methods.
- Develop exponential binomials and sequences.
- 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 Assessment

Scope: Topics studied as covered by the Learning Outcomes

Weight: 40% Midterm Written Exam 60% Final Written Exam

Module Name			Module Code	Level (type)	ECTS
COMPUTAT	TIONAL TH	INKING AND		FOUNDATION	2.5
CODING II					
Module Compo	nents				
Number	Name			Type	<i>ECTS</i>
	Seminar style	classes		Tutor-led	2.5
Module Coordinator	Program Affil	iation	Mandatory Status Mandatory Elective for all IFY students		
IFY Head of Academics		al Foundation Year ule Semester Two			
Entry Requirements Pre-requisites	Co- requisites	Knowledge, Abilities, or Skills Basic practical skills in	Frequency Once a year, Spring semester	Forms of Learni Teaching Tutor-led but i classes (17.5 h	interactive
⊠ Computational Thinking and Coding I □ None	□ ⊠ None	programming language		 Tutor-led Tutorials (3 hours) Directed and independent learning (41.5 hours) 	
			Duration One semester	Workload 62.5 hours	

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

This is the Second semester CORE module for all IFY students. Its primary objective is to impart an understanding of how computation can be utilized to solve problems. Additionally, it aims to instil students, regardless of their major, with a sense of confidence in their capacity to write small programs that can achieve specific objectives. The model's content encompasses key areas related to the practical aspects of programming languages. Detailed topics can be found 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.
- Possess the ability to develop programs and process data to solve problems.
- Understand the process of problem solving and limitations of coding.
- 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.
- Automate solutions through algorithmic thinking.
- Connect coding with real-life problems and other subjects.
- Learn new programming languages for data analysis.

Usability and Relationship to other Modules

Computational Thinking and Coding II is a CORE module studied in the second semester by students joining the IFY program. It is a module of broad relevance, spanning across all subject areas, as computational thinking and coding have become integral components across various disciplines and domains.

Assessment

Midterm and Final Assessment

Weight: 40% Midterm Written Exam | 60% Final Written Exam Scope: Topics studied as covered by the Learning Outcomes



Module Name			Module Code	Leve	ECTS	
CAREER DEVELOPMENT				FOUNDATION	2.5	
Module Compone	ents					
Number	Style			Type	ECTS	
	Seminar style cl	asses		Tutor-led	2.5	
Module Coordinator IFY Head	International F	Program Affiliation International Foundation Year CORE module Semester Two			Mandatory Status Mandatory Elective for all IFY students	
Entry Requirements Pre-requisites ☐ High School Diploma ☑ None	Co-requisites Knowledge, Abilities, or Skills □ None NA		Once a year, Spring semester.	Forms of Learni Teaching Tutor-led but classes (17.5 h semester Directed and independent le (45 hours) / se	interactive nours) / earning	
			Duration One semester	Workload 62.5 hours		

Students should read their intended undergraduate program handbook and connect with an undergraduate or post graduate student involved in that direction. Students will further benefit in creating valuable contacts with whom they can network throughout their studies. This module will provide them with valuable skills and insights to jump start their career development in their Foundation Year which they can utilize throughout their studies to develop their individual career paths.

Content and Educational Aims

This is a second semester CORE module for students of all disciplines. The Career Development module will embody the mission statement of Constructor University Bremen. As such, the program will focus on increasing the self-competence and career skills of its IFY students in a community characterized by diversity. The program is developed and based on IFY students' specific needs to flourish within Constructor University Bremen's educational and social environment. Detailed topics are included in the module's syllabus.

Intended Learning Outcomes

By the end of this module, students will be able to

- Understand, research and gain valuable insights within a selected study direction/career path.
- Connect and network with Industry Professionals in Germany.
- Gain professional skills such as time management and presentation skills.
- Profit from a network of career guidance and support.
- Develop critical and strategic thinking skills.
- Learn how to work in a team.
- Develop study skills needed to succeed at university.

Usability and Relationship to other Modules

The career development module provides students with the needed soft skills such as: professional skills, study skills, self-awareness, career guidance and how to work within a group/team to succeed in a diverse educational environment such as Constructor University Bremen. The program explores the different career paths, encourages social networking, and demands students to take the time to do effective research in order for them to make a more informed decision on their intended undergraduate study program.

Assessment

Midterm and Final Assessment

Weight: 40% Team Presentation and Report 60% Individual Poster Presentation

Scope: Topics studied as covered by the Learning Outcomes

Module Name TESTAS TRAINING II			Module Code	Level FOUNDATION	ECTS 0.0
Module Compon	Module Components				
Number	Name			Туре	ECTS
	Training Session	ns		Tutor-led	0.0
Module Coordinator IFY Head of Academics	Program Affiliation International Foundation Year Common module for all subject areas CORE module Semester One			Mandatory Status Elective for students on the 'Qualification' pathway	
Entry Requirements Pre-requisites ☑ High School Diploma □ None	Co-requisites ☑ TestAS Training I □ None	Knowledge, Abilities, or Skills Basic high school skills	once a year, Spring semester. Duration One semester	Forms of Learning and Teaching Directed and independent training (62.5 hours) Workload 62.5 hours	

Students should review the materials provided in TestAS Training I as a general preparation for the module.

Content and Educational Aims

This module prepares all students for the TestAS exam which is a needed component for admissions to undergraduate studies at Constructor University Bremen.

Intended Learning Outcomes

By the end of this module, students will be able to:

- Prepare properly for the TestAS entrance exam.
- Get informed about the different modules and subjects within the test.
- Practice TestAS questions through training sessions.
- Review the main information needed for the TestAS exam.
- Train for the core module tests.
- Train for the subject-specific module tests in the different areas according to subject direction.

Usability and Relationship to other Modules

The TestAS Training module is essential for 'Qualification' students of all subject areas in order to pass the entrance exam to undergraduate studies at Constructor University Bremen. This module will revise all content introduced in TestAS Training I & further prepare students for the TestAS exam.

Assessment

The TestAS consists of two examination parts: The Core Module tests the general aptitude to study; the Subject Modules the field of study-specific aptitude.

A combined Standard Score of a minimum of 190 points is needed to be able to move on to degree studies at Constructor University Bremen.

MODULES BY SUBJECT AREA

Subject Area TECHNOLOGY

Module Name			Module Code	Level	ECTS		
COMPUTER	SYSTEMS		Wodale Code	FOUNDATION	5.0		
Module Compo	Module Components						
Number	Name			Туре	<i>ECTS</i>		
	Seminar style	classes		Tutor-led	5.0		
Module Coordinator IFY Head of Academics		ation I Foundation Year odule Semester One		Mandatory State Mandatory for see 'Technology'			
Entry Requirements Pre-requisites ☑ High School Diploma □ None	Co- requisites □ ⊠ None	Knowledge, Abilities, or Skills A basic understanding of Computer utilities Basic practical skills in IT	Frequency Once a year, Fall semester	Forms of Learni Teaching Tutor-led but i classes (35 ho Tutor-led Tuto hours) Directed and independent le (83 hours)	interactive ours) orials (7		
			Duration One semester	Workload 125 hours			

Recommendations for Preparation

Students are expected to possess fundamental computer and software skills from their high school or previous studies. They will be provided with a recommended reading list to refresh their background knowledge of Computer Science and acquaint themselves with the topics that will be covered during the semester.

Content and Educational Aims

This is the first semester mandatory SUBJECT module for students of the 'Technology' subject area. It introduces computer systems, including their structure and components, as well as an overview of the essential components and functions of operating systems. The module also covers the basics of Windows and Linux operating systems and their usage. Detailed topics are included in the module's syllabus.

Intended Learning Outcomes

By the end of this module, students will be able to

- Describe the Von Neumann architecture: CPU, memory, I/O devices, and buses.
- Know basic machine language instructions: formats, addressing modes, control flow.
- Describe Memory hierarchy: levels, cache organization, virtual memory, management techniques.
- Explain I/O devices: interfaces, interrupt handling, operations.
- List storage devices: HDDs, SSDs, optical media, file systems, storage management.
- Understand operating system concepts: process management, scheduling algorithms.
- Describe memory management and file systems.
- Explain performance analysis: benchmarking, profiling, optimization.
- Know network principles: protocols, TCP/IP, routing, network security.
- Demonstrate an understanding of the Linux and Windows systems.

Usability and Relationship to other Modules

Computer Systems, along with the module "Fundamentals of Programming with Python 3," is designed specifically for students in the 'Technology' subject area. Together, these modules offer suitable groundwork for students who aspire to pursue technology-related degrees at Constructor University Bremen.

Assessment

Midterm and Final Assessment

Weight: 40% Midterm Written Exam | 60% Final Written Exam Scope: Topics studied as covered by the Learning Outcomes

Module Name FUNDAMEN PYTHON 3	ITALS OF PI	ROGRAMING WITH	Module Code	Level FOUNDATION	ECTS 5.0
Module Compo	nents				
Number	Name			Type	ECTS
	Seminar style	classes		Tutor-led	5.0
Module Coordinator IFY Head of Academics	Internationa	Program AffiliationInternational Foundation YearSUBJECT module Semester Two			u s ubject area
Entry Requirements Pre-requisites ☑ High School Diploma ☐ None	Co- requisites □ ⊠ None	 Knowledge, Abilities, or Skills A basic understanding of computing concepts and algorithms Basic practical skills in IT and programming 	Once a year, Spring semester	Forms of Learni Teaching Tutor-led but i classes (35 ho Tutor-led Tuto hours) Directed and independent le hours)	interactive ours) orials (7
		IT and programming	Duration One semester	Workload 125 hours	

Students should possess basic programming knowledge or have learned it during the first IFY semester. To assist in their preparation for the semester, students will be provided with a recommended reading list that covers the topics to be studied.

Content and Educational Aims

This is the second semester mandatory SUBJECT module for students of the 'Technology' subject area. It serves in equipping students with essential Python 3 coding skills necessary to manipulate various types of data and perform a variety of tasks. Detailed topics are included in the module's syllabus.

Intended Learning Outcomes

By the end of this module, students will be able to

- Recognize the purpose and achievability of a programming language.
- Explain basic principles of Python as a programming language.
- Develop programming skills using Python.
- Recognize Python as a user-friendly language with clear syntax and extensibility.
- Create databases and GUI applications using Python.
- Apply object-oriented and structured programming techniques with Python 3.
- Utilize and apply Python 3 effectively.
- Solve practical exercises using Python 3 to develop programming solutions for simple problems.
- Undergo workshop sessions learning how to program with Python 3.
- Solve practical exercises in the use of Python 3 to provide programming solutions to basic problems.

Usability and Relationship to other Modules

Fundamentals of Computing with Python 3 is a subject area-specific module in 'Technology'. Alongside other modules such as 'Computer Systems,' it offers students the necessary groundwork to excel in technology-related degree programs at Constructor University Bremen.

Assessment

Midterm and Final Assessment

Weight: 40% Midterm Written Exam

50% Final Written Exam + 10% Final Oral Exam

Scope: Topics studied as covered by the Learning Outcomes

Subject Area SCIENCE

Module Name			Module Code	Level	ECTS	
FOUNDATIO	N CHEMISTR	Υ		FOUNDATION	5.0	
Module Compor	nents					
Number	Name			Туре	ECTS	
	Seminar style cla	asses		Tutor-led	5.0	
Module Coordinator IFY Head of Academics	Program Affiliation International Foundation Year SUBJECT module Semester One			Mandatory Status Mandatory for subject area 'Science'		
Entry Requirements Pre-requisites ☐ High School Diploma ☐ None	Co-requisites □ ⊠ None	Knowledge, Abilities, or Skills A basic scientific background from high school	Frequency Once a year, Fall semester	Forms of Learning and Teaching Tutor-led but interact 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 science material 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

This is the first semester mandatory SUBJECT module for students of the 'Science' subject areas. It introduces a needed overview of fundamental chemical knowledge to students interested in continuing their studies within biological and physical science disciplines. The module content covers areas in introductory general, inorganic, analytical and physical chemistry. Detailed topics are included in the module's syllabus.

Intended Learning Outcomes

By the end of this module, students will be able to

- Understand the general aspect of introductory chemistry.
- Use chemical concepts to explain processes in various scientific disciplines.
- Apply chemical knowledge to solve applied problems.
- Gain a first impression on chemical research.
- Recognize the different types of chemical reactions.
- Perform calculations involving stoichiometry and molarity.
- Differentiate the properties of the three main states: gas, liquid and solid.
- Solve problems involving oxidation states and chemical equilibrium.
- Describe acids and bases on a fundamental level.
- Explain the basics of nuclear chemistry.

Usability and Relationship to other Modules

Foundation Chemistry is a subject area-specific module in 'Science', and with the other module 'Foundation Physics' provides an appropriate preparation for students wishing to continue their studies in undergraduate biological and physical science degrees at Constructor University Bremen.

Assessment

Midterm and Final Assessment

Weight: 40% Midterm Written Exam | 60% Final Written Exam

Scope: Topics studied as covered by the Learning Outcomes

Module Name FOUNDATION PHYSICS			Module Code	Level FOUNDATION	ECTS 5.0
Module Compor	nents				
Number	Name			Type	<i>ECTS</i>
	Seminar style cl	asses		Tutor-led	5.0
Module Coordinator IFY Head of Academics	International F	Program AffiliationInternational Foundation YearSUBJECT module Semester Two			us ubject area
Entry Requirements Pre-requisites ☑ High School Diploma ☐ None	Co-requisites □ ⊠ None	Knowledge, Abilities, or Skills A basic scientific background from high school	Once a year, Spring semester	Forms of Learni Teaching Tutor-led but in classes (35 hours) Tutor-led Tutor hours) Directed and independent let (83 hours)	interactive ours) orials (7
			Duration One Semester	Workload 125 hours	

Students should review their science material 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

This is the second semester mandatory SUBJECT module for students of the 'Science' subject areas. It introduces a needed overview of fundamental knowledge of physics to students interested in continuing their studies within biological and physical science disciplines. The module content covers areas in mechanics, material sciences and optics. Detailed topics are included in the module's syllabus.

Intended Learning Outcomes

By the end of this module, students will be able to

- Understand the general aspect of introductory physics.
- Use physics to solve applied problems.
- Gain a first impression on research in physics.
- Describe motion in one and two dimensions.
- Work with Newton's laws of motion.
- Relate force to potential and kinetic energy.
- Describe basic fluid and solid-state mechanics.
- Solve problems related to soundwave propagations.
- Introduce topics of electric forces and fields.
- Describe the main concepts of light optics.

Usability and Relationship to other Modules

Foundation Physics is a subject area-specific module in 'Science', and with the other module 'Foundation Chemistry' provides an appropriate preparation for students wishing to continue their studies in undergraduate biological and physical science degrees at Constructor University Bremen.

Assessment

Midterm and Final Assessment

Weight: 40% Midterm Written Exam

50% Final Written Exam + 10% Final Oral Exam

Scope: Topics studied as covered by the Learning Outcomes

Subject Area SOCIETY

Module Name	N BUSINESS A	AND	Module Code	Level FOUNDATION	ECTS 5.0	
MANAGEME		AND				
Module Compor	ents					
Number	Name			Type	ECTS	
	Seminar style cla	asses		Tutor-led	5.0	
Module Coordinator IFY Head of Academics	International F	Program Affiliation ■ International Foundation Year ■ SUBJECT module Semester One			Mandatory Status Mandatory for 'Society' subject area	
Entry Requirements Pre-requisites ☐ High School Diploma ☐ None	Co-requisites □ ⊠ None	 Knowledge, Abilities, or Skills A basic background in Mathematics. Ability to research, evaluate and express opinions. 	Frequency Once a year, Fall 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

To help students gain a basic understanding of the subject area, a reading list to help prepare them for the topics to be studied during the module will be provided.

Content and Educational Aims

This is the first semester mandatory SUBJECT module for students of the 'Society' subject area. It introduces students to internal and external context of business practice and management. It will delve into business aspects of strategic management, introduce modern and classical business theories, and explain the role of leadership, globalisation, and financial management in business. Detailed topics are included in the module's syllabus.

Intended Learning Outcomes

By the end of this module, students will be able to

- Understand the key business concepts and terminologies.
- Explain the way in which firms develop their business strategy in relation to the economy.
- Comprehend the interplay of objectives and priorities between business stakeholders.
- Differentiate between modern and classical management theories.
- Articulate fundamental marketing principles, theories, and practices.
- State factors that determine the successful operations of a business.
- Explain the impact of globalization in business operations.
- Elaborate on the role of social responsibility in business and management.
- Comprehend financial management concepts through managerial and financial accounting.
- State how companies manage crises and business interruption.

Usability and Relationship to other Modules

Foundation Business and Management is a subject area-specific module in 'Society' and provides together with the 'Introduction to Social Sciences' module an appropriate preparation for students wishing to study in the fields of Business, Industrial Engineering or Social Sciences at Constructor University Bremen.

Assessment

Midterm and Final Assessment

Weight: 40% Midterm Written Exam + Term Paper | 60% Final Written Exam

Scope: Topics studied as covered by the Learning Outcomes

Module Name			Module Code	Level	ECTS	
INTRODUCTION TO SOCIAL SCIENCES				FOUNDATION	5.0	
Module Compor	nents					
Number	Name			Type	<i>ECTS</i>	
	Seminar style cla	asses		Tutor-led	5.0	
Module Coordinator IFY Head of Academics	International F	Program AffiliationInternational Foundation YearSUBJECT module Semester Two			Mandatory Status Mandatory for 'Society' subject area	
Entry Requirements Pre-requisites ☑ High School Diploma □ None	Co-requisites □ ⊠ None	Knowledge, Abilities, or Skills A basic background in general knowledge Ability to research, evaluate and express opinions	Frequency Once a year, Spring semester	Forms of Learni Teaching Tutor-led but classes (35 ho Tutor-led Tutorhours) Directed and independent let (83 hours)	interactive ours) orials (7	
			Duration One semester	Workload 125 hours		

To help students gain a basic understanding of the subject area, a reading list to help prepare them for the topics to be studied during the module will be provided.

Content and Educational Aims

This is the second semester SUBJECT module for students of the 'Society' subject area. It introduces students to the fundamental social sciences concepts in relation to the subjects of sociology, politics, economics, and international relations. The course will introduce the key theorists in the development of social sciences as well as elaborate on the role and impact of culture, technology, and the government in society. Detailed topics are included in the module's syllabus.

Intended Learning Outcomes

By the end of this module, students will be able to

- Understand fundamental social sciences concepts and terminologies.
- State the key theorists in the development of social sciences.
- Comprehend how sociology impacts the understanding of society.
- Explain the elements of culture and multiculturalism.
- Articulate the role of technology on society.
- Differentiate on the purpose of institutions in society.
- Correlate the interconnection of politics and society.
- Elaborate on the organisation of economic activities.
- Clarify the link between international relations and society.
- Express the key aspects of political economies of developing countries.

Usability and Relationship to other Modules

Introduction to Social Sciences is a subject area-specific module in 'Society' and provides together with the module 'Foundation Business and Management' an appropriate preparation for students wishing to study in the fields of Business, Industrial Engineering or Social Sciences at Constructor University Bremen.

Assessment

Midterm and Final Assessment

Weight: 40% Midterm Written Exam

50% Final Written Exam + 10% Final Oral Exam

Scope: Topics studied as covered by the Learning Outcomes





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