ACADEMIC CATALOG

for Students Admitted in 2025

TAEJAE
UNIVERSITY

TAEJAE UNIVERSITY
ACADEMIC CATALOG

for Students Admitted in 2025

Issue Date: January 1, 2026

Contents

I. Overview

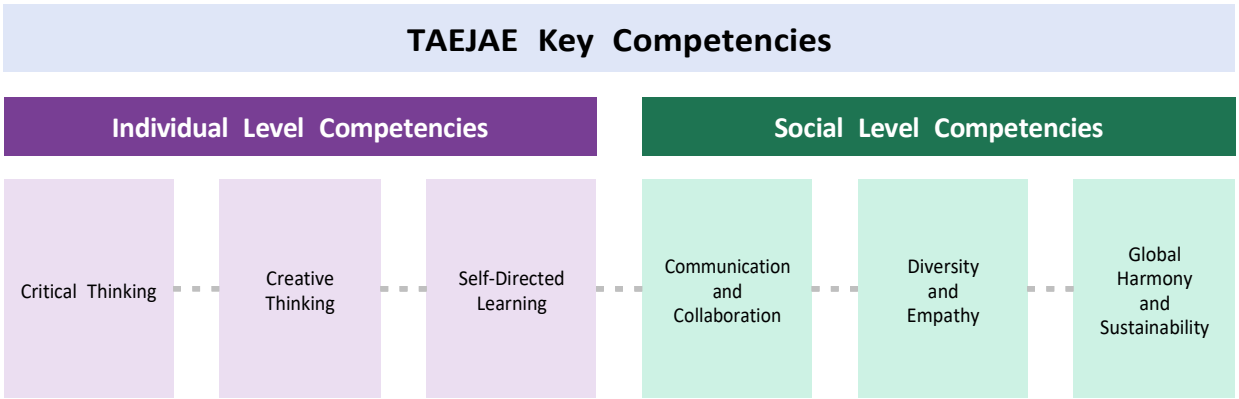
1. Preface

1.1. Vision & Mission

Vision	Taejae University is dedicated to cultivating self-directed, future-oriented, and internationally diverse talents to promote global harmony and sustainability.
Mission	Taejae University cultivates leaders to promote the harmony of mankind and digitally civilized society with its global education platform.

1.2. Curriculum Based on Taejae Key Competencies

The curriculum of Taejae is connected systematically and holistically to the development of Taejae's key competencies.



- ✓ **Critical Thinking**
  Think critically and reason logically
- ✓ **Creative Thinking**
  Think creatively to solve complex problems and make sound decisions
- ✓ **Self-Directed Learning**
  Create self-directed learning goals and independent learning strategies
- ✓ **Communication and Collaboration**
  Communicate clearly and collaborate effectively
- ✓ **Diversity and Empathy**
  Use intercultural competence and empathy to promote social justice and shared prosperity
- ✓ **Global Harmony and Sustainability**
  Apply scientific concepts to global sustainability challenge

2. Curriculum Requirements

2.1. Common Curriculum Requirements

Students must complete a total of **120 credits** for graduation, as outlined in the table below.

Important Note: Graduation eligibility is based on **the total credits earned**, not the number of courses completed. Since credit values may vary by course (e.g., 1, 2, or 4 credits), students must focus on fulfilling **the Minimum Required Credits for each category.**

Category	Requirement Type	Courses & Requirements	Credits	Remarks
Innovation Foundation	Required	Must complete 6 required courses in Innovation Foundation	24	
	Elective	Select elective courses in Innovation Foundation	8	
	Language (No Coursework)	Second Foreign Language - Proficiency Certificates required - Choose 2 languages (Korean, Japanese, Chinese, Russian)	2	Excluding Native Language
		Computer Language (DA major only) - Proficiency Certificate required - Required for Data Science & Artificial Intelligence Major	(1)	DA only
Subtotal ⓐ			**34**	**DA: 35 (34+1)**
Major	Major Foundation	- Single: Include your Major Foundation courses - Double (Minor): Include Major Foundation courses for BOTH majors (or Minor) within the required credits	12	Minimum requirement remains 12+ credits
	Major Elective	Complete at least 24 credits in the your Major	24	
Subtotal ⓑ			**36**	
Field Practice*	Required	Silicon Valley Immersion	1	
		Global Study and Engagement	10	5 Countries
		Civic Project	5	5 Countries
Subtotal ⓒ			**16**	
Others		- Students may select courses from any categories - Double Major: Elective courses for Double Major (24 credits) are counted here - Minor: Elective courses for Minor (16 credits) are counted here	34	
Subtotal ⓓ			**34**	**DA: 33**
Total Credits (ⓐ + ⓑ + ⓒ + ⓓ)			**120**	

**Note:* The 'Europe Grand Tour' has been reclassified as an Extracurricular Program and is excluded from mandatory graduation requirements.

2.2. MOOC Course Credit Recognition

To support students' global learning experiences and provide greater flexibility in academic planning, Taejae University recognizes MOOC courses offered through Coursera for academic credit. This policy enables students to take high-quality online courses from leading institutions worldwide, broaden their academic perspectives, and tailor their studies to align with personal interests and career goals.

In addition, students may earn up to 6 credits per semester and up to 12 credits in total during their entire program through approved Coursera courses. To receive academic credit and related benefits, students must apply for course recognition and submit their final results within the designated period. For detailed guidelines and application procedures, please refer to p.33.

2.3. Additional Degree Requirement: Capstone Project

In addition to the 120 credits specified in Section 2.1, all students must complete a Capstone Project as a mandatory requirement for the degree.

The Capstone Project is the culminating academic experience of undergraduate study, designed to integrate the knowledge and skills acquired throughout the major(s) and apply them to a meaningful, long-term project. Unlike a regular course, the project is carried out in a non-course format, allowing for more personalized and flexible faculty guidance.

Through the Capstone Project, students are expected to develop advanced research skills, creative problem-solving abilities, and practical application competencies. Project outcomes may include, but are not limited to, a research paper, policy analysis, prototype, or multimedia work. Completion of the Capstone Project is required in the final year of study. Successful completion will be officially recorded on the student's transcript and is a prerequisite for graduation. For detailed guidelines and application procedures, please refer to p.36.

II. Innovation Foundations

1. Educational Goals

Upon completion of our program, students should be able to develop those key competencies:

- ✓ **Critical Thinking**
  Students are encouraged to think analytically and systematically, evaluating information and ideas from multiple perspectives to make informed decisions and solve complex problems.

- ✓ **Creative Thinking**
  Students are given knowledge and skills that help them to produce new and useful solutions to difficult problems. They learn to use heuristics that strengthen their abilities to devise new ideas and select those that are most appropriate for a specific situation.

- ✓ **Communication and Collaboration**
  We foster an environment that inspires students to explore new ideas, experiment with novel approaches, and embrace unconventional solutions, ultimately equipping them with the tools to drive groundbreaking change.

- ✓ **Cross-Cultural Skills**
  As the world becomes increasingly interconnected, the ability to navigate and thrive in multicultural settings is crucial. Our programs emphasize the importance of understanding, respecting, and appreciating different cultures, perspectives, and values.

- ✓ **Self-Directed Learning**
  In today's dynamic landscape, the ability to adapt, learn, and grow is essential. We support students in becoming lifelong learners, providing them with the tools to identify knowledge gaps and seek out resources that will enhance their personal and professional growth.

- ✓ **Sustainability**
  Recognizing the critical role that sustainability plays in ensuring a prosperous future, we instill in our students a deep appreciation of the long-term impact of their decisions and the importance of developing innovative solutions that promote environmental, social, and economic well-being.

2. Course List

Course ID	Course Title	Classification	Credits	Credit Hours	
				Lecture	Field Work
IF101	Critical and Rational Thinking	Required	4	4	
IF113 (IF102)	Creative Problem Solving (*Creative Thinking and Problem Solving)	Required	4	4	
IF103	Diversity, Empathy, and Global Citizenship	Required	4	4	
IF111 (IF104)	Empowered Learning (*Motivation and Self-directed Learning)	Required	4	4	
IF112 (IF105)	Rhetoric and Persuasion (*Human Communication)	Required	4	4	
IF106	Sustainability and Equity	Required	4	4	
IF107	Data Analysis and Storytelling	Elective	4	4	
IF108	Judgment and Decision Making	Elective	4	4	
IF109	Leadership and Collaboration	Elective	4	4	
IF110	Navigating Social Systems	Elective	4	4	
SL601	Second Language (Korean)	Elective	1	1	
SL602	Second Language (Japanese)	Elective	1	1	
SL603	Second Language (Chinese)	Elective	1	1	
SL604	Second Language (Russian)	Elective	1	1	
CL601	Computer language	Elective	1	1	

**Note:* The course with this mark is a discontinues course and has been replaced with the course above.

3. Course Description

IF101 l Critical and Rational Thinking

In this course, students learn best practices for thinking critically. Students develop intellectual virtues of thoughtfulness, reflection, and perceptiveness, and learn proven skills for detecting falsehoods and unsound arguments. Students also learn to weigh the credibility of various sources of information and to analyze and reflectively interpret their own judgments and intuitions. These traits, skills, and practices will help students be responsible citizens, perceptive thinkers, and virtuous leaders.

IF113 l Creative Problem Solving **(Formerly: IF102 l Creative Thinking and Problem Solving)**

This course addresses how to use creative thinking methods to solve problems. The course starts with a discussion of creativity and the process of thinking creatively to solve problems. Next, students learn various methods to spur novel and innovative ideas and select the most promising among these. Students will, week by week, apply the lessons learned to a semester-long project to demonstrate their understanding of the learning objectives.

IF103 l Diversity, Empathy, and Global Citizenship

This course helps students to develop the foundational knowledge and skills necessary to become leaders in a global society. Students develop cultural competence and empathy, which includes the ability to effectively interact, work, and solve problems with people of various cultural backgrounds. Students will identify the characteristics of global society and the challenges and opportunities created by an increasingly interdependent world with rapid digital transformation. They will recognize and respect diversity, identify and evaluate diverse perspectives on complex subjects, and analyze complex global issues while evaluating potential solutions.

IF111 l Empowered Learning **(Formerly: IF104 l Motivation and Self-directed Learning)**

This course discusses the value and interrelation of curiosity, interests, and self-directed learning. We consider each of the components of this triad independently and then in combination as a part of the project of developing the highest and best version of the individual self. We begin by examining the role of curiosity and subsequently consider how to foster it. Then, we turn to identifying and developing interests through curiosity. Students will deeply analyze a variety of proven learning strategies that can be used to explore new interests. We will also explore the efficacy of AI as a self-directed learning tool. This course teaches the importance of lifelong growth and development of the individual.

IF112 l Rhetoric and Persuasion **(Formerly: IF105 l Human Communication)**

This course offers an in-depth exploration into the mechanics of effective communication, both written and oral, with a strong emphasis on persuasive techniques. Students will engage in rigorous training to enhance their collaboration skills, learn to construct compelling arguments, and become adept at listening and responding to diverse perspectives. Students will critically analyze and respond to messages across various contexts, craft well-researched, logical, and persuasive arguments in both written and spoken formats, and develop active listening and oral communication skills to better understand and engage with opposing viewpoints.

IF106 l Sustainability and Equity

This course helps students learn how to apply scientific concepts to global sustainability challenges. Students are introduced to the idea of sustainability and apply their understanding by examining and evaluating the United Nations' Sustainable Development Goals. Over the course of the semester, students delve into each of the areas outlined by the UN's SDGs. In doing so, they utilize ideas from many scientific, social science, and liberal arts fields including biology,

chemistry, ecology, environmental science, technology, engineering, social sciences, and the humanities. They apply theories from each of these domains to analyze the UN's sustainability efforts and cultivate their own novel approaches.

IF107 l Data Analysis and Storytelling

This course teaches students how to use data-analysis approaches and storytelling techniques to interpret and present data. The course starts with a review of data-analysis strategies and fundamental statistical analysis. Next, students use visualizations and dashboards to illustrate how data can be used to inform and persuade key stakeholders, including colleagues and the general public. Finally, students demonstrate their learning by way of a scenario-based project, where they use data visualizations and persuasive storytelling techniques to guide authentic real-world decisions.

IF108 l Judgment and Decision Making

This course analyzes major approaches to judgment and decision-making. The course starts with a discussion of basic distinctions among the major approaches, and then considers how judgments and decisions might be flawed due to common cognitive biases. Next, the course explores how human beings make choices using real-world case examples. Finally, the course concludes with an evaluation of moral judgment and decision-making, and an analysis of the importance of understanding judgment and decision-making for our lives. Throughout the course, students apply theoretical concepts to real world situations during active learning exercises.

IF109 l Leadership and Collaboration

In today's increasingly interconnected and globalized world, effective leadership and collaboration skills are not just desirable, but essential. This course helps students to analyze the multifaceted nature of leadership and the dynamics of collaborative environments. Students learn to analyze, compare and contrast various theories of leadership, and they characterize what it means to be a leader in diverse and multicultural settings. The course invites students to consider the role of emotional intelligence and growth mindset in both leadership and collaboration. Beyond leadership skills, students also learn how to be effective team members. Students will learn strategies and techniques that amplify their effectiveness both as leaders and as invaluable team members. Students will be equipped with the knowledge and tools to work cross-culturally, foster inclusivity, and leverage diversity, ensuring not only productive collaborations but also innovative outcomes.

IF110 l Navigating Social Systems

This course helps students identify, analyze, and engage with the social systems and structures at play in the world. They learn important concepts from sociology and social psychology, and then apply those to the global community. They learn about the roles that people play within these systems and the ways that individuals from differing systems can relate through shared values. Students learn about their own roles within these systems, and how their identities may be affected by them. Students use empathy to recognize how these systems affect those with

different social roles or in different social structures. Finally, they investigate challenges that arise within social structures and learn to develop and apply solutions for addressing and mitigating those challenges.

SL601 l SL602 l SL603 l SL604 l Second Language

As a graduation requirement, students must obtain **certification in two languages other than their native language** from the four languages listed in the table below. Upon submission of the relevant certificates, students will be granted **1 credit**, and the second language requirement for graduation will be considered fulfilled. **For credit recognition, students must register for the corresponding course when it is offered each semester and must submit the appropriate certification within the registered semester.**

Course ID	Language	Certification Exam	Minimum Level
SL601	Korean	TOPIK	TOPIK I Level 2
SL602	Japanese	JLPT	N5
SL603	Chinese	HSK / HSKK	Level 2 / Beginner
SL604	Russian	TORFL	Elementary (A1)

CL601 l Computer Language

Students may take courses in various computer languages as part of their academic program. The table below lists examples of eligible programming languages offered and recognized certifications that can be pursued. These certifications are not required for graduation, but may provide valuable opportunities to strengthen technical skills, enhance employability, and support future academic or professional development. **However, students majoring in Data Science & Artificial Intelligence are required to submit proof of completion for at least one of the recognized certifications listed in the table below as a mandatory requirement for graduation.**

Eligible Languages	Python, JavaScript, R, JAVA, HTML, CSS, C, C++, C#, PHP, Kotlin, Swift, etc.
Recognized Certifications	• [Python Institute] PCEP, PCAP, PCPP1, PCPP2, PCAT, PCAD • AWS Certified Developer Associate • AWS Certified Solutions Architect–Associate • azure, GCP • C and C++ Certifications • Oracle Certified Associate Java Programmer OCAJP • R Programming Certification • CCA Spark and Hadoop Developer • Oracle MySQL Database Administration (CMDBA)

III. The Majors

1. Humanities & Social Sciences

1.1. Educational Goals

Upon completion of our program, students should be able to:

- ✓ Develop their own critical perspectives and understanding of human beings and society.
- ✓ Think creatively about key concepts and theories in their chosen areas of interest and use this knowledge to solve real-world problems in innovative ways.
- ✓ Improve their communication and collaborative skills through open discussion and respect and empathy for others.
- ✓ Gain a greater awareness of diversity, empathy, and sustainability and be able to positively impact domestic and global affairs based on these values.
- ✓ Discover their vocational interests and career options through practical experience gained from capstone courses.

1.2. Course List

Course ID	Course Title	Classification	Credits	Credit Hours	
				Lecture	Field Work
HS200	Perspectives on Humans and Society	Major Foundation	4	4	
HS211	Global History I	Major Elective	4	4	
HS212	Global Narratives	Major Elective	4	4	
HS221	Domestic and International Politics	Major Elective	4	4	
HS311	Global History II	Major Elective	4	4	
HS312	Literary and Cultural Connections	Major Elective	4	4	
HS313	Creative Digital Humanities	Major Elective	4	4	
HS314	Global Philosophy	Major Elective	4	4	

Course ID	Course Title	Classification	Credits	Credit Hours	
				Lecture	Field Work
HS321	Domestic Problems and Social Changes	Major Elective	4	4	
HS322	Global Challenges and Governance	Major Elective	4	4	
HS331	Introduction to Finance	Major Elective	4	4	
HS332	Financial Markets and Institutions	Major Elective	4	4	
HS333	Behavioral Economics and the Psychology of Decision Making	Major Elective	4	4	
HS411	Humanities Special Seminar I	Major Elective	4	4	
HS412	Humanities Special Seminar II	Major Elective	4	4	
HS421	Social Science Special Seminar I	Major Elective	4	4	
HS422	Social Science Special Seminar II	Major Elective	4	4	
*NS201	Mathematics for Social and Natural Science	Major Elective	4	4	
*DA202	Experimental Design and Statistics	Major Elective	4	4	

*Note: NS201 (Natural Sciences) and DA202 (Data Science and Artificial Intelligence) may be recognized either as courses offered by the program that provides the course or as major courses within the Program of Humanities and Social Sciences. Note that each course can only be counted once for graduation credit purposes, and students must choose which program's credits they would like the course to count toward. For more details, see the respective program descriptions in the Program of Natural Sciences and the Program of Data Science and Artificial Intelligence sections.

1.3. Course Description

HS200 | Perspectives on Humans and Society

This interdisciplinary course explores multifaceted intellectual perspectives on humans and society, integrating insights from philosophy, literature, the arts, and social sciences. The first part of the course delves into essential aspects of "being human," exploring various themes such as human nature, consciousness, sensibilities, and normativity. The second part focuses on fundamental questions and concepts regarding society, such as freedom, justice, equity, and democracy. Throughout the course, students will engage in critical discussions, debating the strengths and weaknesses of various ideas and weaving connections between them. They will also analyze narratives that bring these ideas to life. Our goal is not only to understand ourselves and society but also to develop the ability to articulate and explain our understanding of them. By the course's conclusion, students will have built a solid interdisciplinary foundation and acquired intellectual tools to further explore and understand complex themes and topics in the humanities and social sciences.

HS211 | Global History I

Global History has emerged as one of the most dynamic approaches to the study of history, offering a powerful framework for understanding how societies have been shaped by complex cultural, political, intellectual, and commercial entanglements. This course examines how long before the rise of Western colonialism societies across the world became deeply interconnected through trade, migration, empire, and intellectual exchange. Moving beyond conventional Eurocentric narratives, Global History serves as a lens to explore how historical actors forged, contested, and reshaped their relationships across vast distances, often in ways that challenge modern assumptions about globalisation and progress. Through this approach, students will develop a strong foundation in premodern global history while also cultivating the essential research and analytical skills to critically assess historical narratives and the complexities of cross-cultural encounters. By the end of this course, students will not only engage with the richness and diversity of the human past but also reflect on how the study of the past can help us navigate today's global challenges.

HS212 | Global Narratives

The stories cultures tell are windows to their societies and lives. Global Narratives explores the diverse tapestry of human stories from around the globe. The course will engage with various forms of narratives, including historical and cultural texts, literature, film, art, digital media, and games. Students will analyze and compare these narratives to investigate global themes like heroism, morality, and nationalism. Through close readings, group discussions, collaborative projects, and creative assignments, students will cultivate a profound appreciation for the diversity of human experiences while developing essential skills in cross-cultural communication, intercultural empathy, critical thinking, and creativity.

HS221 | Domestic and International Politics

This seminar explores the key concepts and topics in domestic and international politics. The course is divided into three parts, each focusing on a specific aspect of politics. In the first part, students examine various political regimes and their determinants from a comparative perspective. The second part focuses on the roles and functions of political institutions and actors in the context of a democratic system. In the third and final part, students investigate the characteristics and essential mechanisms of international politics.

HS311 | Global History II

Working with the insights of global historians like Sebastian Conrad and Sanjay Subrahmanyam, this course moves beyond 1500 and asks how interconnectedness can be understood not only through trade routes, intellectual networks, and imperial structures connections forged during the classical, late antique, and medieval periods but also through the deepening of global entanglements shaped by new structures of power, knowledge, and social transformation that shaped "the modern world". Across five interlinked units, the course explores how conquest, classification, commerce, and cosmology intersected across the globe to reshape political and intellectual life and examines how competing visions of modernity emerged across

Europe, Asia, Africa, and the Americas. The course foregrounds entangled transformations, contested claims, and uneven exchanges that defined the making and unmaking of the modern world. By the end of this course, students will not only have investigated the conditions that gave rise to global modernity by critically analysing primary sources and engaging with global historiographical debates but will also have critically engaged in sustained interrogation of what modernity means, where it came from, whose interests it served and how its legacies continue to shape our present world. In doing so, students will also be better equipped to engage with contemporary challenges of global harmony, sustainability, and cultural diversity, understanding how historical entanglements continue to inform the inequalities, solidarities, and responsibilities of the present.

HS312 | Literary and Cultural Connections

Literature's role as a cultural institution, influencing individual identity and values, will be emphasized in this course. It expands on Global Narratives by exploring diverse literatures, analyzing forms of expression, comparing themes, and considering the influence of genres across cultural traditions. Students gain insights into universal human experiences and cultural interpretations by exploring works from diverse regions and traditions. The course also examines major theoretical statements in literary theory and criticism from various disciplines that illuminate the relationship between form and meaning in literature, exploring how ideas are portrayed and questioned. By the end, students develop a comprehensive view of contemporary approaches to literature, understanding world literature's cultural significance and its relationship to various expressions. Analytical and critical thinking skills are honed through cultural diversity and interdisciplinary analysis. Works selected by the instructor can encompass traditions from Africa, Asia, the Caribbean, Europe, North and South America, and other regions.

HS313 | Creative Digital Humanities

Creative expression using new technologies is an important tool for the future. In this course, students will learn the basic applications of digital humanities and how they can be used to conduct research and creatively express ideas. New techniques for applying programming and other skills developed at Taejae will be further explored. These skills will be combined with artistic elements ranging from creative writing to design and more. For example, students may put narrative theories into practice, refining their storytelling skills and experimenting with different narrative approaches, including digital formats. Students will design their own projects in collaboration with the instructor, drawing on multiple techniques learned during the course. Equipped with these abilities, students will be prepared to embark on their own content creation journeys, whether as aspiring writers, traditional and new media creators, game designers, journalists, or researchers who can creatively captivate and inspire.

HS314 | Global Philosophy

This seminar explores diverse philosophical traditions and perspectives from around the world, transcending the confines of Western European thought. The course invites students on a profound intellectual journey, delving into the profound insights, debates, and wisdom of

philosophers from various cultural backgrounds. Through critical analysis and thought-provoking discussions, participants will appreciate the profound contributions of various philosophers and gain valuable insights into the universal themes that connect humanity's quest for knowledge, meaning, and moral guidance.

HS321 | Domestic Problems and Social Changes

This course explores the intersection of public policy and social change within a domestic context. In the first part of the course, students examine the role of government and various stakeholders in addressing complex social issues and problems. In the second part, students learn and practice how to develop, implement, and assess public policy solutions to domestic social challenges with case studies and interactive discussions. Upon the completion of this course, students will be equipped with a solid understanding of how public policy can drive social transformation and innovation, as well as the skills necessary to foster an inclusive and sustainable society.

HS322 | Global Challenges and Governance

In this seminar, students will explore the complex issues facing our interconnected world and examine the mechanisms of governance designed to address these challenges. Through a multidisciplinary approach, students will analyze pressing global problems such as climate change, poverty, inequality, terrorism, conflict, and human rights. They will gain insights into the roles of international organizations, governments, NGOs, and civil society in promoting global cooperation and sustainable development. By examining case studies and engaging in discussions, students will develop a critical understanding of the dynamics of global governance and acquire the skills necessary to contribute to addressing global challenges effectively.

HS331 | Introduction to Finance

This course introduces students to the principles and practices of financial management in organizations. Students learn about financial goals, time value of money, risk and return, and the relationship between risk and value. They study topics such as financial statement analysis, financial planning and forecasting, working capital management, and capital budgeting. This course also introduces capital markets.

HS332 | Financial Markets and Institutions

This course focuses on understanding the structure and functioning of financial markets and institutions. Students learn about different types of financial markets, such as stock markets, bond markets, and money markets, as well as the role of banks and other financial intermediaries. They study topics such as interest rates, financial instruments, financial regulation, and the impact of market conditions on investments.

HS333 | Behavioral Economics and the Psychology of Decision Making

This course integrates concepts from psychology and economics to analyze economic decision-making. Students learn about the deviations from rationality in economic behavior and

the implications for market outcomes. They study topics such as bounded rationality, time preferences, behavioral game theory, and the application of behavioral economics to policy and business contexts.

HS411 | Humanities Special Seminar I
HS412 | Humanities Special Seminar II

This seminar offers a dynamic platform within the School of Humanities and Social Sciences, presenting specialized electives beyond standard coursework. This seminar series responds adeptly to the evolving demands of our students and the expertise of our faculty. Updated annually, the curriculum explores a diverse range of advanced topics tailored to foster critical thinking and interdisciplinary engagement. From cultural studies to literary analysis, philosophical inquiries to historical perspectives, this seminar cultivates a vibrant intellectual community where students delve deeply into nuanced subjects. Through interactive discussions, research projects, and collaborative endeavors, participants refine their analytical skills and broaden their understanding of the human experience.

HS421 | Social Science Special Seminar I
HS422 | Social Science Special Seminar II

This seminar offers a dynamic platform within the School of Humanities and Social Sciences, presenting specialized electives beyond standard coursework in Social Sciences. Responding to the evolving needs of our students and the expertise of our faculty, the theme of the seminar is updated annually. Through interactive discussions, research initiatives, and collaborative projects, participants refine their analytical skills and deepen their understanding of societal dynamics and human behavior.

2. Natural Sciences

2.1. Educational Goals

Upon completion of our program, students should be able to:

- ✓ Develop problem-solving skills, simulation techniques, effective communication, and a strong foundation in theoretical knowledge for real-world applications.
- ✓ Acquire interdisciplinary knowledge and critical thinking methods to tackle complex challenges in modern and future society.
- ✓ Foster global engagement and cultural awareness by understanding global issues and designing solutions with scientific approaches.
- ✓ Encourage self-directed learning and self-tailored projects to support students' unique interests and career goals.

2.2. Course List

Course ID	Course Title	Classification	Credits	Credit Hours	
				Lecture	Field Work
NS200	Physics in the Modern Society	Major Foundation	4	4	
NS201	Mathematics for Social and Natural Science	Major Elective	4	4	
NS202	Chemical Principles	Major Elective	4	4	
NS221	Life Science	Major Elective	4	4	
NS311	Energy Transformation and Rates	Major Elective	4	4	
NS312	Electronics and Optics for Future Solutions	Major Elective	4	4	
NS321	Genetics and Biodiversity	Major Elective	4	4	
NS331	Integrated Earth Systems and Dynamics	Major Elective	4	4	
NS332	Ecological System of Earth	Major Elective	4	4	
NS402	Data-Driven Scientific Discovery	Major Elective	4	4	
NS411	Quantum Principles and Net Zero Design	Major Elective	4	4	
NS421	Molecular Processes in Living systems	Major Elective	4	4	
NS431	Strategies for Environmental Challenges	Major Elective	4	4	
*DA202	Experimental Design and Statistics	Major Elective	4	4	

*Note: DA202 (Data Science and Artificial Intelligence) may be recognized either as courses offered by the program that provides the course or as major courses within the Program of Natural Sciences. Note that each course can only be counted once for graduation credit purposes, and students must choose which program's credits they would like the course to count toward. For more details, see the respective program descriptions in the Program of Data Science and Artificial Intelligence sections.

2.3. Course Description

NS200 | Physics in the Modern Society

Physics for Modern Society is a comprehensive course designed to introduce students to the fundamental principles of physics and their applications in the context of our rapidly advancing modern society. Through a combination of theoretical exploration and hands-on simulations with programming, this course aims to provide students with a solid understanding of the underlying concepts of physics and how they are relevant to various aspects of our daily lives. Topics covered include classical physics, energy, thermodynamics, quantum mechanics, relativity, and modern technologies. By the end of the course, students will have developed critical thinking skills and the ability to apply physics knowledge to real-world scenarios, preparing them for future academic and professional pursuits in related fields.

NS201 | Mathematics for Social and Natural Science

This course explores the fundamental concepts of calculus, parametric equations, polar coordinates, sequences and series, and Fourie and Laplace transformation. Through interactive sessions, collaborative discussions, and problem-solving activities, students will develop a strong foundation in mathematical principles that underpin science and technology. By understanding mathematics from real-world applications, students will be equipped with the mathematical tools necessary to comprehend and contribute to the advancements of our modern society.

NS202 | Chemical Principles

Chemical Principles is an engaging and interactive course designed for students seeking a deep understanding of the molecular and atomic interactions governing the behavior of matter in our world. This course includes fundamental chemistry topics of the structures of matters and their changes to explore the intricate connections between chemistry, physics, earth science, and biology. Through designing experiments, virtual simulations, and collaborative problem-solving, students will develop a strong foundation in mechanistic chemical explanations and their applications in advanced scientific disciplines.

NS221 | Life Science

Life Science is a comprehensive course that provides students with a solid foundation in biology and its applications in modern society. Through theoretical knowledge, practical applications, creating simulations, and collaborative projects students will explore topics such as cellular structure, genetics, evolution, and ecological interactions. They will develop critical thinking skills, scientific inquiry methods, and an understanding of how biological knowledge is applied in medicine, biotechnology, agriculture, and environmental conservation. This course aims to foster a deep appreciation for the complexity of life while highlighting its relevance to human existence, equipping students with the skills to analyse biological phenomena and apply their understanding to real-world scenarios.

NS311 | Energy Transformation and Rates

This course delves into the fundamental principles of energy, motion, and chemical reactions. Through a combination of theoretical knowledge, practical applications, virtual labs, and simulations, students will explore the interdisciplinary nature of this course, integrating concepts from physics, chemistry, and biology. Topics covered include the laws of thermodynamics, energy transformations, chemical equilibrium, reaction rates, catalysis, and the factors influencing chemical reactions. By studying the behaviour of matter and the rates at which reactions occur, students will gain a comprehensive understanding of the fundamental principles that govern chemical systems. This course prepares students for further studies in physics, chemistry, biology, earth science and other related fields while also providing them with a solid foundation to comprehend and analyse the dynamic processes of nature.

NS312 | Electronics and Optics for Future Solutions

This course delves into the principles and applications of electronics and optics while emphasising their role in providing solutions for current and future challenges. Students will explore from fundamental theory to the cutting-edge scientific knowledge in these fields and learn how to apply it to tackle real-world problems, addressing issues such as communication, energy, healthcare, and beyond. Through system design, team projects, and critical thinking exercises, students will develop the skills and mindset necessary to contribute to innovative solutions using electronics, optics, and future-oriented approaches.

NS321 | Genetics and Biodiversity

This course explores the dynamic relationship between genetics, evolution, and life's diversity, offering students a comprehensive understanding of how genetic principles shape inheritance patterns and drive the processes of biological evolution. Through an exploration of topics such as heredity, genetic variation, natural selection, speciation, and adaptation, students will gain insights into the intricate mechanisms that underlie the remarkable diversity of life on our planet, and how these processes have shaped the biological world as we know it today.

NS331 | Integrated Earth Systems and Dynamics

This course explores the intricate connections and interactions within Earth's systems and their influence on the environment. Through a multidisciplinary approach, students will gain a comprehensive understanding of Earth's physical processes, including geology, meteorology, hydrology, and biogeochemistry, as well as the complex interplay between these systems. By studying the Earth as a dynamic and integrated system, students will analyse environmental issues, such as climate change, land degradation, and natural resource management, and explore sustainable solutions for a resilient future. This course combines theoretical knowledge with virtual labs, and simulations to emphasise a system-based approach to understanding Earth's dynamics and addressing environmental challenges.

NS332 | Ecology System of Earth

This course offers a comprehensive exploration of the intricate web of interactions among organisms and their environments. Through an interdisciplinary approach, students will investigate the principles and processes that shape ecological systems at various levels, including individuals, populations, communities, and ecosystems. By studying topics such as population dynamics, community structure, species interactions, and nutrient cycling, students will gain a deep understanding of how organisms adapt to their environments, how ecosystems function, and the impact of human activities on ecological systems. Through data analysis and critical thinking exercises, students will develop the skills to assess and address environmental challenges, fostering a deeper appreciation for the delicate balance of life on Earth. This course provides a solid foundation for further studies in ecology, environmental sciences, and related fields, and equips students with the knowledge and tools to contribute to the sustainable management and conservation of our planet's natural resources.

NS402 | Data-Driven Scientific Discovery

This course is a collaborative endeavour between the Natural Sciences and Data Science & AI departments. It is designed to merge the foundational principles of natural sciences with advanced techniques in artificial intelligence and data analysis. The course aims to equip students with the skills to harness the power of AI and big data in addressing complex scientific questions and challenges. Students will delve into topics such as AI-driven simulations in physics, machine learning applications in biological research, and environmental modelling using AI. The curriculum includes projects where students will use AI algorithms to analyse large datasets, simulate natural phenomena, and propose solutions to real-world scientific problems. This interdisciplinary approach will not only enhance students' understanding of natural sciences but also provide them with practical skills in AI and data science, preparing them for cutting-edge research and innovative problem-solving in diverse scientific fields.

NS411 | Quantum Principles and Net Zero Design

This course focuses on applying fundamental theories of physics, particularly the fascinating realm of quantum physics and explores its practical applications in designing and implementing net zero solutions. From foundational concepts to advanced principles, students will gain a comprehensive understanding of how quantum principles can be leveraged to tackle the challenges of achieving a net zero carbon footprint. Through a combination of theoretical learning and real-world case studies, students will be equipped with the knowledge and skills necessary to design innovative and sustainable solutions for a greener future.

NS421 | Molecular Processes in Living Systems

Molecular Processes in Living Systems investigate the intricate mechanisms governing molecular interactions within biological systems. Through a comprehensive exploration of biochemistry and molecular biology, students will gain a deep understanding of the fundamental processes that drive life, from the structure and function of biomolecules to the intricate pathways involved in cellular metabolism, gene expression, and signal transduction. By examining

the dynamic interplay between DNA, RNA, proteins, and other essential biomolecules, students will develop a strong foundation in understanding the molecular underpinnings of life, equipping them with the knowledge to unravel the complexities of living systems and pursue further studies in the fields of biochemistry, molecular biology, and related disciplines.

NS431 | Strategies for Environment Challenges

This is an interdisciplinary course designed to equip students with the knowledge and skills to address pressing environmental issues facing our planet. Through a combination of theoretical frameworks, case studies, and practical problem-solving exercises, students will explore strategies using modelling and simulation for mitigating and adapting to challenges such as climate change, habitat loss, pollution, and resource depletion. Drawing from fields such as environmental science, policy, and economics, students will examine scientific approaches for sustainability, conservation, and environmental management. By engaging in critical discussions, collaborative projects, and real-world simulations, students will develop a comprehensive understanding of the complexity of environmental challenges and the tools necessary to design effective strategies that promote environmental well-being for current and future generations.

3. Data Science and Artificial Intelligence

3.1. Educational Goals

Upon completion of our program, students should be able to:

- ✓ Develop advanced technical expertise essential for designing and realizing technology-empowered future societies while maintaining a refined, user-centric approach.
- ✓ Attain comprehensive theoretical knowledge and thorough understanding of the principles of data science and artificial intelligence.
- ✓ Enhance core competencies and practical skills in computing technology through hands-on projects linked to on-site learning and civic projects across five global campuses. Outcomes of these experiences culminate in an all-encompassing capstone project upon graduation.
- ✓ Cultivate critical, creative, and convergent thinking abilities to identify and tackle intricate and complex challenges in both society and industry and devise practical solutions by applying creative design thinking approach.

3.2. Course List

Course ID	Course Title	Classification	Credits	Credit Hours	
				Lecture	Field Work
DA200	Design of AI and Data-driven Services	Major Foundation	4	4	
DA201	Computational Thinking and Data Literacy	Major Elective	4	4	
DA202	Experimental Design and Statistics	Major Elective	4	4	
DA203	Database Design and Management	Major Elective	4	4	
DA311	Computational Mathematics and Mathematical Modeling	Major Elective	4	4	
DA312	Computer Algebra and Symbolic Computation	Major Elective	4	4	
DA321	Data Analytics & Visualization	Major Elective	4	4	
DA322	Predictive Modeling and Analysis	Major Elective	4	4	
DA331	Machine Learning and Deep Learning	Major Elective	4	4	
DA332	Computer Vision and Image Processing	Major Elective	4	4	
DA411	Optimization and Operations Research	Major Elective	4	4	

Course ID	Course Title	Classification	Credits	Credit Hours	
				Lecture	Field Work
DA421	Affective Computing	Major Elective	4	4	
DA431	Natural Language Processing	Major Elective	4	4	
DA432	AI in the Real World: Use Cases in Society and Business	Major Elective	4	4	
*NS201	Mathematics for Social and Natural Science	Major Elective	4	4	

*Note: **NS201** (Natural Sciences) may be recognized either as courses offered by the school that provides the course or as major courses within the Program of Data Science and Artificial Intelligence. Note that each course can only be counted once for graduation credit purposes, and students must choose which program's credits they would like the course to count toward. For more details, see the respective program descriptions in the Program of Natural Sciences.

3.3. Course Description

DA200 | Design of AI and Data-driven Services

In this class, students learn and practice the basic concepts and methodology for creating human-centered service systems based on data science and artificial intelligence. The course consists of three units: 1. Concept, 2. Methodology, and 3. Practice (Hands-on Project). In the Concept unit, students learn about the definition and history of data science, artificial intelligence, and service design, and explore various examples to help them understand the essence, benefits, challenges, and limitations of the technology. The Methodology unit introduces and elaborates on the five-stage process and methodology for creating human-centered intelligent services: discover, define, design, develop, and deliver. The Hands-on Project unit includes workshop sessions designed to help students acquire and practice the methodology to apply the user-centered service design process and to real-world problems.

DA201 | Computational Thinking and Data Literacy

This course introduces students to computational thinking and data literacy. Students will learn how to approach problems like computer scientists, develop logical algorithms, and use data analytics to solve them. The course will cover key concepts in computational thinking and data literacy, such as abstraction, decomposition, pattern recognition, data analysis, visualization, and communication. The course will also focus on the ethical implications of data use and how to make evidence-based decisions. The course will use real-world examples and hands-on activities to help students develop and apply key concepts.

DA202 | Experimental Design and Statistics

This course offers a comprehensive introduction to statistical concepts and techniques used in research and data analysis. As a student, you'll gain an understanding of key topics in statistics ranging from data types and measurement scales to probability distribution, statistical inference, and experimental design methods. This knowledge will enable you to analyze and interpret data effectively using descriptive statistics, correlation and regression, and data visualization techniques.

You'll also study quality control and Six Sigma, big data analytics, and machine learning. Throughout the course, you'll be expected to demonstrate your learning through hands-on assignments and experiments. By the end of the course, you'll have a thorough grounding in statistical techniques, enabling you to apply them in a range of settings to support real-world research, analysis and decision-making.

DA203 | Database Design and Management

This course covers the fundamentals of modern database design and management, from introduction to databases, to the latest techniques in data warehousing and mining. Students will learn about the relational model and database normalization, as well as ER modeling and database design. Structured Query Language (SQL) will also be studied in-depth, covering everything from queries and subqueries to indexing and constraints, as well as query optimization, transactions, and concurrency control. Additional topics include data security and access control, distributed databases, and replication. Students will also learn about XML and relational databases, as well as NoSQL databases. This course provides a solid foundation for managing and analyzing large databases in a range of industries.

DA311 | Computational Mathematics and Mathematical Modeling

This course introduces students to computational mathematics and mathematical modeling. Students will learn about nonlinear equations, root finding techniques and optimization techniques such as unconstrained and constrained. The course will explore interpolation and approximation techniques, numerical methods for integration and differentiation, numerical methods for initial and boundary value problems of differential equations. Additional topics include Fourier series and transform, partial differential equations, finite difference methods, finite element methods, and Monte Carlo methods for simulation in finance and engineering. The course also covers Numerical Linear Algebra, including matrix inverses and eigenvalue problems, as well as direct and iterative methods. Upon completion of this course, students will be able to utilize computational mathematics and mathematical modeling in various fields.

DA312 | Computer Algebra and Symbolic Computation

This course explores the fundamental concepts of calculus, parametric equations, polar coordinates, sequences and series, and Fourie and Laplace transformation. Through interactive sessions, collaborative discussions, and problem-solving activities, students will develop a strong foundation in mathematical principles that underpin science and technology. By understanding mathematics from real-world applications, students will be equipped with the mathematical tools necessary to comprehend and contribute to the advancements of our modern society.

DA321 | Data Analytics & Visualization

This course provides an introduction to data analytics and visualization, covering key topics such as data collection methods, pre-processing techniques, and exploratory data analysis. Students will learn about data mining techniques such as regression, cluster analysis, and association rule mining, as well as text mining and sentiment analysis. The course will also

delve into data visualization design principles and techniques, including graphs, charts, and maps, as well as interactive and dynamic visualization. Advanced topics such as time-series and sequence analysis, machine learning methods and applications, and big data analytics technology and tools will also be explored. Finally, the course will also cover data ethics, privacy, and security considerations when working with data. This course provides a strong foundation for leveraging data analytics and visualization to gain insights and inform decision-making across a range of industries.

DA322 | Predictive Modeling and Analysis

This course introduces students to predictive modeling and analysis with a focus on machine learning algorithms applied to various data types. Topics include data cleaning and exploration, regression analysis, clustering, dimensionality reduction, time series analysis, and deep learning concepts. Model evaluation techniques such as cross-validation, bias-variance tradeoff, and metrics like accuracy and precision are covered along with model deployment techniques including APIs, model serving, and interpretability. Upon completion, students will be proficient in applying predictive modeling and analysis techniques to real-world problems.

DA331 | Machine Learning and Deep Learning

This course provides a comprehensive introduction to machine learning and deep learning. Topics include supervised and unsupervised learning, data preprocessing, feature engineering, and various machine learning algorithms such as logistic regression and decision trees. Students will learn about classification techniques, clustering, anomaly detection, neural networks, deep learning frameworks, NLP techniques, generative models, transfer learning, fine-tuning, model interpretability and explainability, ethics, bias, and advanced topics in machine learning and deep learning techniques. Upon successful completion, students will have practical skills to solve real-world problems using machine learning and deep learning techniques.

DA332 | Computer Vision and Image Processing

This course provides an in-depth overview of fundamental concepts and state-of-the-art advancements in Computer Vision and Image Processing. Students will learn about various topics such as feature extraction, segmentation, object detection, and recognition. Additionally, 3D computer vision, machine learning, and deep learning concepts will be introduced. Students will gain practical experience working with real-world applications of computer vision, such as medical imaging, surveillance, and augmented reality. Finally, students will develop a final project that demonstrates their comprehension of the course content. Upon completion, students will be equipped to apply computer vision and deep learning techniques to solve complex problems in various scenarios.

DA411 | Optimization and Operations Research

This course covers topics such as linear programming, nonlinear programming, network models, inventory models, queueing theory, project management, decision analysis, game theory and simulation methods. Students will learn about different optimization methods, transportation and

assignment problems, as well as inventory models. The course will also teach students about network models like shortest path problems, maximum flow problems, and minimum-cost flow problems. Upon completion of this course, students will be able to apply these tools to solve real-world problems.

DA421 | Affective Computing

This course offers an introduction to Affective Computing and explores various techniques for collecting, processing and analyzing emotions. Students will learn about affective perception and processing techniques, models for affective representation, classification, and analysis, and affective generation techniques. The course looks at the design of affective interfaces, creating affective dialogue systems, applications of affective computing, and affective IoT systems. Additionally, the course discusses the ethics of affective AI and its implications for mass marketing. Students will conduct a project in the field, including project presentations and reflections. Overall, this course aims to equip students with the necessary skills and knowledge to implement affective computing in various fields.

DA431 | Natural Language Processing

This course introduces Natural Language Processing (NLP) with a focus on practical applications such as sentiment analysis, text classification, information retrieval, and dialogue systems. Students learn about text preprocessing techniques, regular expressions, named entity recognition, and part-of-speech tagging. The course covers lexicon and machine learning-based sentiment analysis, advanced techniques including aspect-based sentiment analysis and emotion analysis, and text classification models such as Naive Bayes, decision trees, SVM, ensemble learning, and deep learning. Students also learn about information retrieval, text similarity, topic modeling, language translation, and natural language generation. The course includes a final project applying the learned concepts to a real-world scenario.

DA432 | AI in the Real World: Use Cases in Society and Business

AI in the Real World: Use cases in Society and Business is a comprehensive course that explores how artificial intelligence (AI) is being used in different fields. The course examines business intelligence tools and applications such as Tableau, QlikView, and Power BI, and data mining and analysis tools like Cloudera, Hadoop, IBM Watson, R, Python, and SAS. Students learn about AI-powered technologies such as natural language processing, image analysis, robotics, and speech recognition, and how these technologies are being implemented in various industries including healthcare, finance, entertainment, and marketing. The course also focuses on ethical issues surrounding AI and lessons learned from past AI failures. This course prepares students to become knowledgeable professionals in the growing field of AI.

4. Business Innovation

4.1. Educational Goals

Upon completion of our program, students should be able to develop the following key capabilities:

- ✓ **Entrepreneurial Thinking**
  The School of Business Innovation aims to cultivate an entrepreneurial mindset among its students. It strives to instill a sense of creativity, risk-taking, and opportunity recognition, enabling students to think outside the box and develop innovative solutions to business challenges.

- ✓ **Innovation and Adaptability**
  The school is dedicated to fostering a culture of innovation and equipping students with the skills and knowledge necessary to adapt to rapidly changing business environments. It encourages students to embrace emerging technologies, stay updated with industry trends, and develop the ability to identify and seize new opportunities.

- ✓ **Strong Leadership Skills**
  The School of Business Innovation recognizes the importance of strong leadership in driving business success. It focuses on developing leadership capabilities among its students through courses, workshops, and experiential learning opportunities. The goal is to produce graduates who can effectively lead teams, inspire others, and navigate complex organizational dynamics.

- ✓ **Collaboration and Networking**
  Collaboration is a vital aspect of the modern business landscape. The school emphasizes the importance of teamwork and provides opportunities for students to engage in group projects, case studies, and collaborative initiatives. It also facilitates networking events and connections with industry professionals, fostering valuable relationships that can contribute to future career growth and business partnerships.

- ✓ **Respect of Ethical and Sustainable Business Practices**
  The School of Business Innovation places a strong emphasis on ethical and sustainable business practices. It recognizes the importance of responsible entrepreneurship and aims to educate students on the social, environmental, and ethical implications of business decisions. The goal is to produce business leaders who prioritize sustainability, corporate social responsibility, and ethical conduct in their professional endeavors.

4.2. Course List

Course ID	Course Title	Classification	Credits	Credit Hours	
				Lecture	Field Work
BI200	Economics for Business and Policy Decisions	Major Foundation	4	4	
BI211	Principles of Accounting	Major Elective	2	2	
BI221	Introduction to Finance	Major Elective	2	2	
BI231	Principles of Marketing	Major Elective	2	2	
BI241	Business Analytics	Major Elective	2	2	
BI322	Financial Markets and Institutions	Major Elective	4	4	
BI323	Capital Markets and Investments	Major Elective	4	4	
BI351	Strategic Management	Major Elective	2	2	
BI352	Global Business Strategy	Major Elective	4	4	
BI361	Organizational Behavior	Major Elective	2	2	
BI362	Leadership and Team Management	Major Elective	4	4	
BI371	Entrepreneurship	Major Elective	4	4	
BI372	Business Planning & Strategy for Startups	Major Elective	4	4	
BI423	Corporate Finance	Major Elective	4	4	
BI424	Financial Engineering	Major Elective	4	4	
BI432	Brand Management & Strategy	Major Elective	4	4	
BI473	Valuation for Startups & Venture Capital	Major Elective	4	4	
BI481	Behavioral Economics & The Psychology of Decision Making	Major Elective	4	4	
BI492	AI in the Real World: Use Cases in Society and Business	Major Elective	4	4	
*NS201	Mathematics for Social and Natural Science	Major Elective	4	4	
*DA202	Experimental Design and Statistics	Major Elective	4	4	

*Note: NS201 (Natural Sciences) and DA202 (Data Science and Artificial Intelligence) may be recognized either as courses offered by the program that provides the course or as major courses within the Program of Business Innovation. Note that each course can only be counted once for graduation credit purposes, and students must choose which program's credits they would like the course to count toward. For more details, see the respective program descriptions in the Program of Natural Sciences and the Program of Data Science and Artificial Intelligence sections.

4.3. Course Description

BI200 | Economics for Business and Policy Decisions

Economics underlies all business and policy decisions including pricing, product development, investments, and monetary policy. This course provides an introduction to economic principles and their applications in business and policy decision-making. Students will develop a solid understanding of microeconomic and macroeconomic concepts and their relevance to various business and policy environments. The course will emphasize the application of economic analysis to real-world business and policy scenarios.

BI211 | Principles of Accounting

This course focuses on the preparation, analysis, and interpretation of financial statements. Students learn the basic accounting principles, concepts, and techniques used to record financial transactions. They study topics such as the accounting equation, double-entry bookkeeping, journal entries, general ledger, trial balance, and the preparation of financial statements, including the income statement, balance sheet, and cash flow statement.

BI221 | Introduction to Finance

This course introduces students to the principles and practices of financial management in organizations. Students learn about financial goals, time value of money, risk and return, and the relationship between risk and value. They study topics such as financial statement analysis, financial planning and forecasting, working capital management, and capital budgeting. This course also introduces capital markets.

BI231 | Principles of Marketing

This course provides an overview of marketing principles and concepts. Students learn about the role of marketing in organizations, the marketing process, and the importance of customer value and satisfaction. They study topics such as marketing ethics, social responsibility, and the impact of marketing on society.

BI241 | Business Analytics

This course provides students with an overview of the field of business analytics and its applications in various industries. Students learn about the role of data in business decision-making, the process of data analytics, and the tools and techniques used in analyzing and interpreting business data. They study topics such as data types, data sources, data cleaning, and exploratory data analysis.

BI322 | Financial Markets and Institutions

This course focuses on understanding the structure and functioning of financial markets and institutions. Students learn about different types of financial markets, such as stock markets, bond markets, and money markets, as well as the role of banks and other financial intermediaries. They study topics such as interest rates, financial instruments, financial regulation, and the impact of market conditions on investments.

BI323 | Capital Markets and Investments

This course introduces students to the principles and practices of investment within capital markets. Emphasis is placed on understanding investment instruments such as stocks, bonds, mutual funds, and derivatives, and on developing analytical tools for portfolio construction and risk management. Students will explore market efficiency, valuation methods, behavioral finance, and the impact of macroeconomic factors on investment decisions.

BI351 | Strategic Management

This course offers an overview of strategic management and its role in achieving organizational goals. Students learn about the strategic planning process, environmental analysis, and strategic decision-making. They study topics such as industry analysis, competitive advantage, strategic positioning, and strategic implementation.

BI352 | Global Business Strategy

This course explores the complexities of formulating and implementing strategies in a global business environment. Students learn about international market entry strategies, global supply chain management, and managing cultural diversity. They study topics such as country risk analysis, global competitive dynamics, and the challenges of coordinating global operations.

BI361 | Organizational Behavior

This course provides an overview of the fundamental concepts and theories in organizational behavior. Students learn about the individual, group, and organizational levels of analysis. They study topics such as perception, personality, attitudes, motivation, and the impact of organizational behavior on performance and job satisfaction.

BI362 | Leadership and Team Management

This course focuses on the principles and practices of leadership and effective team management. Students learn about different leadership styles, leadership theories, and the skills required for leading teams. They study topics such as team dynamics, conflict management, decision-making, and the role of leadership in fostering high-performance teams.

BI371 | Entrepreneurship

This course explores the entrepreneurial mindset and the process of starting and managing new ventures. Students learn about the characteristics of successful entrepreneurs, the identification of entrepreneurial opportunities, and the basics of business planning. They study topics such as market analysis, financial feasibility, and the key elements of a business model.

BI372 | Business Planning & Strategy for Startups

This course focuses on developing comprehensive business plans and strategic frameworks for startups. Students learn about strategic analysis, competitive positioning, and the development of sustainable business models. They gain practical skills in creating business plans, conducting feasibility studies, and presenting their ideas to stakeholders.

BI423 | Corporate Finance

This course focuses on financial decision-making within corporations. Students learn about capital structure, cost of capital, dividend policy, and capital budgeting. They study topics such as the time value of money in corporate finance, project evaluation techniques, and the impact of financing decisions on the value of the firm.

BI424 | Financial Engineering

This course provides an overview of financial engineering, including its principles, tools, and applications. Students learn about financial markets, derivative instruments, risk management techniques, and basic quantitative methods used in financial engineering.

BI432 | Brand Management & Strategy

This course explores the principles and strategies involved in building and managing brands. Students learn about brand positioning, brand equity, and brand identity. They study topics such as brand development, brand extensions, brand loyalty, and the impact of branding on consumer behavior and competitive advantage.

BI473 | Valuation for Startups & Venture Capital

This course explores the specific challenges and techniques involved in valuing startup companies and assessing investment opportunities in the venture capital space. Students will learn about the unique factors affecting startup valuations, such as early-stage risks, growth potential, and intangible assets. The course also covers valuation methods used by venture capitalists and angel investors.

BI481 | Behavioral Economics & The Psychology of Decision Making

This course integrates concepts from psychology and economics to analyze economic decision-making. Students learn about the deviations from rationality in economic behavior and the implications for market outcomes. They study topics such as bounded rationality, time preferences, behavioral game theory, and the application of behavioral economics to policy and business contexts.

BI492 | AI in the Real World: Use Cases in Society and Business

AI in the Real World: Use cases in Society and Business is a comprehensive course that explores how artificial intelligence (AI) is being used in different fields. The course examines business intelligence tools and applications such as Tableau, QlikView, and Power BI, and data mining and analysis tools like Cloudera, Hadoop, IBM Watson, R, Python, and SAS. Students learn about AI-powered technologies such as natural language processing, image analysis, robotics, and speech recognition, and how these technologies are being implemented in various industries including healthcare, finance, entertainment, and marketing. The course also focuses on ethical issues surrounding AI and lessons learned from past AI failures. This course prepares students to become knowledgeable professionals in the growing field of AI.

IV. Field-Practice Course

1. Education Goals

The course aims to foster students' global awareness and intercultural competence. It strengthens their ability to conduct research on real-world social issues and supports the development of problem-solving skills through the design and application of practical solutions grounded in cultural and historical understanding. The Civic Project focuses on developing students' ability to address future societal challenges through self-directed research on social issues in varied national and local contexts. Both Global Society and Global Engagement Tour enhance students' engagement with global challenges by fostering a deeper understanding of the historical, social, and cultural dimensions that shape them.

2. Course List

Course ID	Course Title	Classification	Credits	Credit Hours	
				Lecture	Field Work
CV806	Civic Project: Korea	Field Practice / Required	1		2
CV807	Civic Project: U.S.A.	Field Practice / Required	1		2
CV808	Civic Project: China	Field Practice / Required	1		2
CV809	Civic Project: Japan	Field Practice / Required	1		2
CV810	Civic Project: Russia	Field Practice / Required	1		2
GS806	Global Study and Engagement: Korea	Field Practice / Required	2	1	2
GS807	Global Study and Engagement: U.S.A.	Field Practice / Required	2	1	2
GS808	Global Study and Engagement: China	Field Practice / Required	2	1	2
GS809	Global Study and Engagement: Japan	Field Practice / Required	2	1	2
GS810	Global Study and Engagement: Russia	Field Practice / Required	2	1	2
ST803	Silicon Valley Immersion	Field Practice / Required	1		2

3. Course Description

The School of Natural Sciences suggests three tracks for specific majors. These tracks are organized to relate theoretical foundations, critical analysis, and real-world applications to one another. The curriculum in the School of Natural Sciences emphasizes the value of fundamental science in explaining the universe and finding solutions for future society. Students, however, can choose any elective subject in the school of Natural Sciences or other schools. Students can design their own tracks for the major through continuous consultation with professors in all majors they're interested in.

CV806 | CV807 | CV808 | CV809 | CV810 | Civic Project

This course provides students with the opportunity to investigate real-world social issues through student-led projects, focusing on problem definition rather than solution delivery. Students conduct civic projects in Korea, the United States, China, Japan, and Europe, selecting project topics, defining social problems, and examining them within local and regional contexts. The course emphasizes process-oriented inquiry, interdisciplinary thinking, and communication with community stakeholders. Students are encouraged to identify issues that cause inconvenience, conflict, or demand improvement in their communities, and to explore them from multiple perspectives. In doing so, they gain practical experience in research, teamwork, and ethical engagement, while also cultivating empathy toward social challenges. By combining academic analysis with community-based inquiry, the Civic Project prepares students to address complex issues in local contexts with a global perspective.

GS806 | GS807 | GS808 | GS809 | GS810 | Global Study and Engagement

The GSE program comprises five country-specific courses-GSE: Korea, GSE: Japan, GSE: China, GSE: U.S.A., and GSE: Russia - each integrating analytical lectures, guided discussions, and academic excursions. Students explore sites ranging from historical landmarks and contemporary institutions to future-oriented spaces, examining their roles in shaping national identities and global dynamics. Expert-led, on-site sessions encourage students to move beyond surface-level observation toward deeper engagement with structural processes and historical patterns, illuminating how past transformations inform present realities and open future possibilities across diverse cultural and political systems.

ST803 | Silicon Valley Immersion

This course provides students with an intensive immersion into the entrepreneurial and innovation ecosystem of Silicon Valley. Through company visits, lectures, and design thinking workshops, students explore how global technology firms, venture capitalists, accelerators, and consulting companies address organizational challenges and foster innovation. The program emphasizes iterative thinking, entrepreneurship, and innovation.

It helps students develop understanding and analytical skills in technological advancement, processes of innovation, the growth of enterprises and industries, and international business trends. The program consists of thematic lectures delivered by faculty and industry experts,

company visits to startups, accelerators, venture capital firms, and global technology companies, and a sequence of design challenge sprints focused on discovery, ideation, prototyping, and storytelling. Through these activities, students connect academic knowledge with practice. In this process, they gain deeper insights into the impact of technology on society, the creation of new venture enterprises, the dynamics of industrial ecosystems, and the transformations shaping future societies.

V. MOOC Course Credit Recognition

1. Program Overview

Taejae University recognizes MOOC courses offered through Coursera for academic credit to foster global competencies and support self-directed academic planning. This policy enables students to access curricula from world-renowned institutions, tailor their degree pathways to align with personal career goals, and enhance flexibility in their studies.

2. Operational Guidelines

2.1. Application and Enrollment

✓ **Eligibility**

Students must select courses that issue a verifiable completion certificate. Courses that do not offer an official certificate are not eligible for credit.

✓ **Approval Process**

Students wishing to receive credit must submit a formal application to the Dean of their respective undergraduate division during the course registration period. Enrollment is permitted only upon receiving prior written approval from the Dean.

✓ **Self-Paced Learning**

Once approved, students may complete the course at their own pace. Coursework may be conducted at any time, including during vacation periods, provided that the completion requirements are met before the submission deadline.

2.2. Tuition Support

The University provides financial support for Coursera course fees at a rate of US $49 per credit, up to a maximum of 12 recognized credits. Should Coursera's pricing structure change, the supported amount per credit will be subject to appropriate adjustment.

3. Credit Recognition and Evaluation

3.1. Application and Enrollment

To finalize credit recognition, students must submit the official Credit Recognition Application Form and the Course Completion Certificate to the Office of Academic Affairs.

The submission period will be announced each semester, and all required documents must be submitted strictly within the designated period.

3.2. Evaluation Policy

- ✓ **Grading Scale**
  Credits are awarded on a Pass/Fail (P/F) basis.

- ✓ **Criteria**
  Upon verification of the valid completion certificate, the course will be recorded as a 'Pass' (P) on the academic transcript. Numeric grades are not assigned.

3.3. Credit Limits and Counting Methodology

- ✓ **Maximum Credits**
  Students may earn up to 6 credits per semester and a cumulative total of 12 credits throughout their entire degree program.

- ✓ **Calculation Standard**
  The semester credit limit (6 credits) is calculated based on the date of certificate submission and recognition, not the date of initial application or study.

- ✓ Note: Even if a student studies during the summer/winter break, if the certificate is submitted at the end of the Fall semester, the credits will count towards the Fall semester's 6 credit limit.

- ✓ In principle, students in their final semester are not permitted to apply for or submit results for Coursera credit recognition.

- ✓ The schedule will be uploaded to the student portal each year, so students are responsible for checking the application and submission deadlines themselves.

4. Credit Classification and Allocation

4.1. Credit Classification

Credits earned through Coursera courses are not recognized as major course credits; however, they are counted toward the total number of credits required for graduation.

4.2. Credit Allocation Based on Course Hours

In accordance with the standards set forth by the Korean Higher Education Act, academic credits are allocated based on the minimum course completion hours as follows:

Minimum Course Hours	Recognized Credits
15 hours or more	1 credit
30 hours or more	2 credits
45 hours or more	3 credits
60 hours or more	4 credits

VI. Capstone Project

1. Course Description

The Capstone Project is the culminating academic experience of undergraduate study, designed to help students bring together what they have learned throughout their major(s) and apply it to a meaningful project.

Originally designed as part of 3rd- and 4th-year courses, the program has now been reshaped into a non-course format to allow for more personalized and flexible faculty guidance. The program's purpose is to cultivate advanced research, creative problem-solving, and practical application skills that extend beyond the classroom. By producing an outcome such as a research paper, a policy analysis, a prototype, or a multimedia work, students learn to frame complex questions, manage long-term projects, and communicate results to different audiences.

Although it is not a regular course, the Capstone Program is a mandatory graduation requirement. All students must complete it in their final year in order to graduate, and successful completion will be recorded on the official transcript.

2. Guidance and Requirements

Students will receive supervision from their assigned faculty advisor, and final evaluation will be conducted by the Capstone Review Committee. Students may complete the Capstone individually or in teams of up to four, and must produce one of the following types of final work:

- ✓ Research Paper: Academic paper in English (minimum 5,000 words)
- ✓ Practical Outputs: App, web service, prototype, etc.
- ✓ Multimedia Creations: Video, podcast series, game, etc.
- ✓ Project Report/Portfolio: Lab report, policy analysis, community project, etc.
- ✓ Other types of scholarly or creative work approved by the Capstone Review Committee

3. Preparation and Operation Process

3.1. 4th Year, Fall Semester

- ✓ September: Announcement of Capstone Program procedures to 4th-year students and faculty.
- ✓ November: Submission of project proposal
  (approx. 2 pages: topic, plan, and preferred advisor).
- ✓ December: Assignment of advisors by the Capstone Review Committee.

3.2. 4th Year, Winter (Jan–Feb): Project work begins.

3.3. 4th Year, Spring Semester

- ✓ March–April: Progress check and advising.
- ✓ Early May: Submission of final product and summary report.
- ✓ May: Evaluation by two reviewers (including advisor). The Capstone Review Committee makes the final decision. Students who do not pass may revise and resubmit by early June.
- ✓ June: Results reflected in student records and transcripts.

4. Evaluation Criteria

Evaluation Criteria		Description	Core Competency	Points
1	Creative Problem-Solving	• Is the project topic or solution approach original and imaginative? • Does the work demonstrate creative thinking in design, framing, or execution?	Creative Thinking	20pts
2	Analytical Depth & Rigor	• Is the argument or product grounded in critical analysis? • Does it engage deeply with evidence, context, or technical challenges?	Critical Thinking	20pts
3	Communication & Collaboration	• Is the final product effectively structured and clearly conveyed? • Were feedback, peer input, or collaborative elements meaningfully integrated?	Communication & Collaboration	15pts
4	Self-Directed Learning	• Did the student manage their own learning, schedule, and development process? • Does the outcome reflect perseverance and self-initiative?	Self-Directed Learning	15pts
5	Empathy & Inclusiveness	• Does the project reflect understanding of diverse perspectives? • Are ethical, cultural, or social contexts considered respectfully?	Diversity & Empathy	15pts
6	Global & Sustainable Perspective	• Does the project consider global relevance or long-term sustainability? • Is the outcome mindful of wider impact beyond immediate context?	Global Harmony & Sustainability	15pts
Total				**100pts**

*Passing Standard: Minimum 70 points. Final evaluation includes both quantitative scoring and qualitative written feedback.