# Course Description of Computer Science Program

### **Foundation Courses**

ICMA 100	Foundation Mathematics	0		
Prerequisites:	Placement test			
Expressions a	and equations; linear functions; polynomials and nonlinear functions	; radical and		
rational funct	ions; the data analysis			
ICMA 101	Precalculus	0		
Prerequisites:	Placement test			
Functions and	Functions and graphs; polynomial functions; rational functions; exponential functions; logarithmic			
functions; trigonometry; unit circle; trigonometric identities; complex numbers				
ICME 101	Foundation English: Communication Skills	0		
Prerequisites: Placement test				
A remedial course preparing students to use communicative and academic English at a level				
suitable for entering the English Studies I: The Writer's Toolkit course				



ICGC 104	English Studies I: The Writer's Toolkit	4		
Prerequisites:	Placement Writing Test			
An introducti	on to the academic writing process through the development of the	writer's voice		
through sente	through sentencing, structure, and rhetorical devices; focus on strategies for using and integrating			
researched sources; methods to compose well-structured essays based on themes relevant to				
the world today				
ICGC 105	English Studies II: The Writer's Voice	4		
Draraguisitas	Diagona ant Writing Tost or ICCC 104 English Studies I. The Writer's Tool	Li+		

Prerequisites: Placement Writing Test or ICGC 104 English Studies I: The Writer's Toolkit
The integration of skills in academic research and writing to analyze and create persuasive compositions; techniques to identify strengths and weaknesses in argument; development of students' knowledge and preconceptions of global issues through a progressive series of essays and journal assignments

ICGC 106	English Studies III: Public Speaking	4	
Prerequisites	ICGC 105 English Studies II: The Writer's Voice		
Fundamenta	ls of key skills for confident and effective public speaking through a serie	s of prepared	
and unprepa	ared speeches; introduction and application of techniques to info	orm/persuade	
audiences; ut	ilization of the Writer's Toolkit (English Studies I) and the Writer's Voice (E	nglish Studies	
II) to create a	and deliver speeches to a professional standard		
ICGC 221	English Studies IV: The World of English - Global Realities	2	
Prerequisites	ICGC 106 English Studies III: Public Speaking		
An exploration	on and a critical analysis of key texts on poetry, literature, and legislativ	e documents	
in order to ur	nderstand the complexity and challenges of the world we live in; theme	s encouraging	
students to d	consider values, human rights and government; class discussions, journa	ıl writing, and	
presentation	activities to demonstrate how students can contribute to the betterme	ent of society	
ICGC 222	English Studies IV: The World of English - Literary Analysis	2	
Prerequisites	ICGC 106 English Studies III: Public Speaking		
A review of l	iterary works from selected literary genres; an exploration of how litera	ature informs	
our perception	ons of the world by way of analytical and critical thinking; utilising s	scaffolding of	
strategies for	students to understand the function of a variety of literary forms		
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ICGC 223	English Studies IV: The World of English - Creative Writing	2	
Prerequisites	ICGC 106 English Studies III: Public Speaking		
An examinati	on of fiction, poetry, drama, and media production through readings, s	peeches, and	
films; comparisons of writing in different genres; creation of a work of publishable quality by means			
of the consid	leration of audience and genre		
ICGC 224	English Studies IV: The World of English - Advanced Oral	2	
	Communication		
Prerequisites	ICGC 106 English Studies III: Public Speaking		
Theories of persuasion, non-verbal techniques, and voice control for advanced presenters;			
strategies to develop high levels of voice control and expressions; activities including debates,			
presentations, and occasional speeches; the development of students' abilities to express			
	themselves confidently in a variety of academic and professional environments through		
impromptu and prepared speeches			
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English Studies IV: The World of English - Literature Into Film

Prerequisites: ICGC 106 English Studies III: Public Speaking

ICGC 226

2

An examination of the technical aspects of translating literature into film; an exploration of the interplay between literature and films through an analysis of literary works in their film versions; an exploration of the challenges merging both mediums

ICGC 228 English Studies IV: The World of English - Language and Culture 2

Prerequisites: ICGC 106 English Studies III: Public Speaking

An examination of the interplay between language and culture; a critical exploration of the global spread of the English language with a focus on the English culture coming out of the Global South

ICGC 230 English Studies IV: The World of English - First and Second Language 2

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Prerequisites: ICGC 106 English Studies III: Public Speaking

An exploration of how children develop their first language; comparing and contrasting of the second language development; theories of language development from behaviorism to more recent cognitive and functional approaches; the implications and applications of theories

ICGC 231 English Studies IV: The World of English - Poetr 2

Prerequisites: ICGC 106 English Studies III: Public Speaking

An in-depth study of poetry, including metrics, forms, themes, ethnic voices, throughout history; an evaluation of poetry from different genres through discussions, workshops and research

ICGC 232 English Studies IV: The World of English - The Short Story and the

Novel

Prerequisites: ICGC 106 English Studies III: Public Speaking

A study of elements of fictions in short stories and novels through class workshops on characters, dialogue, plot and atmosphere; class discussions to analyze the effect of historical and social developments on selected themes

ICGC 233 English Studies IV: The World of English - Drama 2

Prerequisites: ICGC 106 English Studies III: Public Speaking

An exploration of ways to understand and appreciate drama by reading, watching, and analyzing theatrical performances; fundamentals of theatrical production and stage performance

ICGC 234 English Studies IV: The World of English - Literary Non-fiction 2

Prerequisites: ICGC 106 English Studies III: Public Speaking

An exploration of literary nonfiction, a flourishing genre of writing a step away from academic work; reading of compelling, informative, and insightful but also entertaining, imaginative, and risky

nonfiction work; overview of various techniques utilized within this field of writing and media; analysis and response to a variety of texts

ICGC 235 English Studies IV: The World of English - Writing for Research 2

Prerequisites: ICGC 106 English Studies III: Public Speaking

A student-centric approach to developing research writing skills; an overview of the conventions of the world of research with an emphasis on academic honesty and academic style; use of sample papers to provide students with models to prepare effective abstracts, literature reviews, research paper outlines and short academic articles

## **MU Literacy**

ICGB 101	Project Management for Impacts	2
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Prerequisites: None

Develop self-awareness as a MAHIDOL person; application of the university's motto, philosophy, and core values to benefit the community; the application of the Project Management Bodies of Knowledge (PMBOK) and skills; the management of social service projects; Social impact assessments aligning with Sustainable Development Goals (SDGs) and other frameworks

ICGB 108	Event for Good	اما	Lloive	and it.	2
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Prerequisites: None

Develop self-awareness as a MAHIDOL person; application of the university's motto, philosophy, and core values to benefit the community; exploration of various methods and strategies for organizing events that drive positive impact for communities; organizing an event focusing on community engagement, fundraising, or others with a focus on social outcomes or community-focused objective

ICGN 139	Scientific Inquiry and the Community	2
		i

Prerequisites: None

Develop self-awareness as a MAHIDOL person; application of the university's motto, philosophy, and core values to benefit the community; applying process of science discovery to authentic issues in the local community through observation or experiment; collaborate with peers in findings; summarizing and reporting to local stakeholders

ICGS 169	Learning by Doing	2
Prerequisites	: None	

Develop self-awareness as a MAHIDOL person; application of the university's motto, philosophy, and core values to benefit the community; social work, ethical principles and values in social work, roles and settings in social work practice, collaborative approaches in social work, SDGs and their interconnectedness, analyzing global challenges addressed by the SDGs, partnerships with local communities for SDG initiatives

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ICGS 171	Digital Campaign for Gender Issues

2

Prerequisites: None

Develop self-awareness as a MAHIDOL person; application of the university's motto, philosophy, and core values to benefit the community; gender inequalities and gender-based violence in society; gender activistism & technologies; working with local communities to raise awareness of gender violence and abuse; use of social media to condemn violent acts; raising awareness of human rights & equality; organizing collaborative work and discovering creative solution to gender issues; use of social media to offer solutions to the needs of the community

# ICGS 172 | Service Learning - Making Change

4

Prerequisites: None

Develop self-awareness as a MAHIDOL person; application of the university's motto, philosophy, and core values to benefit the community; exploring the nature of change and resistance in human society and across several disciplines such as philosophy, psychology, political science, sociology, and business; reviewing case studies about how change is initiated, implemented, resisted, and achieved; challenging students through projects to identify a need for change, and to devise a plan and implement it

# ICGS 173 Service Learning - Campaigning for a Cause

4

Prerequisites: None

Develop self-awareness as a MAHIDOL person; application of the university's motto, philosophy, and core values to benefit the community; research, analyse, evaluate, present and produce media campaigns for selected community / Non-Governmental Organizations / Charitable Organization(s)

# ICGS 175 | Social Innovation and Sustainability

2

Prerequisites: None

Develop self-awareness as a MAHIDOL person; application of the university's motto, philosophy, and core values to benefit the community; exploring social innovation and sustainability principles, focusing on sustainable ecosystems, ethical decision-making, effective communication, and collaboration. Engaging in project-based learning to address global challenges, promoting responsible citizenship and leadership skills. Applying the 4Cs of 21st-century education: Critical

thinking, Communication, Collaboration, and Creativity. Analyzing ethical theories and frameworks, such as utilitarianism and deontological ethics, for moral decision-making. Utilizing communication theories and models, like the Shannon-Weaver model and Monroe's Motivated Sequence, for clear and persuasive communication. Highlighting team dynamics and conflict resolution for effective collaboration. Encouraging creative problem-solving aligned with the Sustainable Development Goals (SDGs). Preparing purposeful presentations and working as cohesive team members for sustainable development

ICGS 176	Sustainable Cooking	2
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Prerequisites: None

Develop self-awareness as a MAHIDOL person; application of the university's motto, philosophy, and core values to benefit the community; student-led community projects promoting importance of sustainability in the food system; sustainable food choices and cooking; fundamental science in cooking; collaborative work to identify sustainable issues in culinary food production; students design creative solutions aligning with needs of the community; promote sustainable cooking and food consumption

ICGS 177 Social Innovation: Empowering Sustainable Communities	2
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Prerequisites: None

Develop self-awareness as a MAHIDOL person; application of the university's motto, philosophy, and core values to benefit the community; exploring the dynamics of social change through innovation, based on frameworks like Asset-Based Community Development and the Social Capital theory, focusing on ethical decision-making, human rights, and community empowerment. Engaging with local communities to co-create sustainable solutions using Participatory Action Research, fostering responsible citizenship and ethical leadership. Integrating critical thinking and communication to address social challenges, promoting collaboration and creativity in line with the Sustainable Development Goals (SDGs)

ICGT 107	Innovation: Inside Out	2
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Prerequisites: None

Develop self-awareness as a MAHIDOL person; application of the university's motto, philosophy, and core values to benefit the community; community-based projects course incorporating fundamentals of design thinking; empathy-building techniques; user-centered problem statements formulation; innovative solutions, design thinking tools; concept-to-prototype

# **Health Literacy**

ICGH 136	Sound & Soul: A Journey of Music, Emotion, and Well-being	2		
Prerequisites:	None			
Discovering ho	ow music can guide emotional states, fostering relaxation, motivation, a	and creativity;		
exploring how	v music interacts with our emotions and sound's power in emotional ex	xpression and		
regulation; ex	tending to the cultural influences that shape our perceptions of beaut	ty in music as		
well as discus	ssing techniques for incorporating music into our lives to cultivate em	notional well-		
being and na	vigating different genres and styles for a richer experience of ourse	lves and our		
environment				
ICGH 143	Flowers and Fragrances for Health	2		
Prerequisites:	None			
Introduction t	to the scientific and cultural aspects of floral fragrances for health bene	fits; exploring		
sustainable p	perfume industry and traditional essential oil extraction for medicin	nal purposes;		
significance o	f flowers in human society; floral composition, floral aesthetics, arom	atherapy and		
how these rel	late to human mental and physical health			
ICGN 135	Personal Health and Well being	2		
Prerequisites:	None			
Understandin	g the health as a continuous process and can be changed at any time o	depending on		
the choices we make; exploring the current challenges facing young people of today; evaluating				
on how they affect health and healthful behavior; what individuals can do to navigate these				
challenges to	challenges to arrive at their goals for the future			
ICGP 101	American Flag Football	1		
Prerequisites:	None			
	sport course emphasizing techniques, non-contact game play, inclu	3 3		
	d catching and development of teamwork management, commu	nication, and		
terminology				
ICGP 102	Badminton	1		
Prerequisites:	None			
' A racket based sport course stressing technique, strategies, grip, serving, positioning and				
movement, game play in both singles and doubles				
ICGP 103	Basketball	1		
Prerequisites:	None			

A ball based sport course emphasizing attentiveness, dribbling, passing, shooting, rebounding, ball control, game play, and development of game strategies ICGP 104 **Body Fitness** 1 Prerequisites: None A comprehensive course in one or more exercise techniques: strength/resistance, cardio, plyometric, stretching, high-intensity interval training, and calisthenics; to maintain health and wellness ICGP 105 1 Cycling Prerequisites: None A course designed on cycling instruction for safety, fitness, riding techniques, posture, communication, knowledge of equipment and hazards, for recreational and commuter cycling ICGP 106 Discover Dance 1 Prerequisites: None A dance based course of current forms and techniques in one or more categories: African/Jazz, Worldwide Dances/Latin Dances, Professional Performance Dance, Modern Dance, Hip-hop/Funk ICGP 107 Golf 1 OHIVEISIL Prerequisites: None A club based game course designed on developing correct grip, stance, posture, swing, and knowledge of equipment, rules, regulations, and etiquette ICGP 108 Mind and Body 1 Prerequisites: None A course stressing meditation postures, techniques, movement, and breathing to achieve positive mental state ICGP 109 Selected Topics in Sports 1 Prerequisites: None Learning concepts, rules and strategies through planned and structured movements by way of sport or activity to enhance a healthy lifestyle ICGP 110 Self Defense (Striking) 1 Prerequisites: None

External martial arts (striking) course emphasizing hard physical impact and exertion, muscular strength and tension, maximizing speed and power, through body coordination

ICGP 111 | Self Defense (Grappling)

1

Prerequisites: None

Internal martial arts (grappling) course stressing timing, awareness, precision, and techniques, using body leverage for throws, take downs, pins, and submissions

ICGP 112

Soccer

1

Prerequisites: None

A ball based sport course stressing alertness, ball control, including dribbling, passing, trapping, shooting, ball movement, game play, and development of strategies through drills and competitive play

ICGP 113

Social Dance

1

Prerequisites: None

A dance based social sport or activity course of choreographed movements, styles and regulations from International Ballroom (Standard) and International Latin dances

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ICGP 114

Swimming

1

Prerequisites: None

A water based sport course stressing swimming techniques, breathing, and knowledge of buoyancy, propulsion, and water safety

ICGP 115

Tennis

1

Prerequisites: None

A racket based sport course of techniques, strategy, grip, serve, game play, ball tracking, timing, shot control, through drills, live ball hitting sessions, and competition

ICGP 116

Volleyball

1

Prerequisites: None

A ball sport course emphasizing passing, setting, serving, developing strategies, positions, game play, teamwork management, and communication

ICGP 118

Health and Wellness

2

Prerequisites: None

Wellness design for a lifelong healthy lifestyles; basic principles of achieving physical, emotional, intellectual, environmental, social and spiritual well being

ICGP 119	Mindful Food and Well-being	2
Prerequisites:		
Explore food fundamental consumers in	and culinary trends, food choices, and the concept of mindful food relationships between food and well-being; food products and various demographics; food products and food service features that enhandful food and eating	services for
ICGP 120	Mind and Body: Navigating the Interplay of Brain, Behavior, and Well-being	2
Prerequisites:	None	
The relations	ship between psychology and health; the influence of psychological	al factors on
physical well	-being; Exploration of how brain, thoughts, emotions, and behaviours ir	mpact overall
health outco	mes; Current knowledge in sleep, gut-brain connection on health and we	ell-being; The
integration of	theory, research, and practical applications of psychological principles	s to promote
health and w	ellness	
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ICGS 121	Abnormal Colleagues: how do I make this work?	4
Prerequisites: None		
The stigma of	psychological issues; the fear of the workplace gossips and job security;	an avoidance
of getting tre	atment and counseling; a recognition of various disorders and devising	strategies to
effectively correlationships	ommunicate and work with people; improving the workplace prod	ductivity and
	International College	
ICGS 126	Introduction to Psychology	4
Prerequisites:	None	
Human beha	viour and mental functioning; the nervous system; consciousness; s	ensation and
perception; psychogenetic, life-span development; thinking, memory, language, conditioning and		
learning, mot	ivation, personality, and stress	
ICGS 155	Pathway to Purpose: Life Design and Self-Exploration	4
Prerequisites:	None	
Assessment of	of personal strengths, weaknesses, and areas for improvement; indiv	idual values,
beliefs, and l	ife goals; goal setting; self-awareness and emotional intelligence; life de	esign
ICGS 164	Positive Psychology	2
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A practical introduction to the study of human flourishing and well-being; help students thrive using Positive Psychology principles including the PERMA model of well-being; develop a greater

Prerequisites: None

understanding of positive emotions, engagement and flow, positive relationships, meaning and achievement; individual application of research findings via well-being project

ICGS 178	Unmasking Human Behaviour: Exploring Psychological Truths about	2
	Behaviour	

Prerequisites: None

Introduction to the psychological principles and the importance of evidence-based thinking; Examination of current research on memory, perception, personality, mental illness, stereotype, prejudice, and social behaviour to debunk common myths and misconceptions about human behaviour

ICGS 179	Health and Society	2

Prerequisites: None

Exploring the concept of health across the historical periods; history of disease and origins of medicine; epidemics in the ancient societies; social welfare and the state; contemporary epidemics and the impact on society, state, and people, WHO and the role in the promotion of health

ICLL 100	Self Development	( )	2

Prerequisites: None

Life skills for 21st century workplace through learning or training activities in various topics including creativity, growth mindset, leadership, and emotional intelligence or other selected personal development activities approved by the academic advisor and Curriculum Administrative Committee

#### Science & Environment Literacy

ICGH 131	Unraveling the Anthropocene: A Philosophical Critique of Earth's	
	Shifts and Humanity's Roles	

Prerequisites: None

Exploring the Anthropocene through the lens of philosophy of science and technology, scrutinizing the profound transformations on our planet and within societies; analyzing scientific advancements and technological innovations' roles in propelling this epochal shift, delving into the intricate interplay between human agency and environmental consequences; challenging conventional paradigms of development and progress through critical analysis, interrogating underlying assumptions that led to this critical juncture

ICGH 142	Fantasy Literature's Environmental Message	2
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Prerequisites: None

An overview of the science of ecology; fiction analysis; an overview of the fantasy fiction subgenre; close reading of fantasy novels and short stories to recognize ecological realities and environmental messages; applying through personal reflection, through activities that promote the health of the environment, and through creative work

## ICGH 144 A Candle in the Dark: How to Tell Fact from Fiction

2

Prerequisites: None

Rationalism and the scientific method; scientific awareness for decision-making; science vs. pseudoscience; supernaturalism and creationism; charlatanism and quackery; magical thinking and superstitions; conspiracy theories and fake news; fact-checking and logical fallacies

## ICGN 105 | Ecology, Ecosystems and Socio-Economics in Southeast Asia

4

Prerequisites: None

Human impacts on Southeast Asian ecology; human impacts on Southeast Asian's biodiversity and natural resources; fundamental ecological and resource management principles; current sustainable development issues; sustainable development practices for Southeast Asia

# ICGN 107 The Chemistry of Everyday Life

4

Prerequisites: None

Portable electronics; the air we breathe; radiation from the sun; climate change; energy from combustion; energy from alternative sources; water; polymers and plastics; nutrition; health and medicine; genes and life

### ICGN 108 | Essentials of Culinary Science for Food Business

4

Prerequisites: None

Changes during preparation, heating, and storage of raw materials and of finished products, foodservice and commercial packaged food industries; chemical, sensory, and nutritional natures of food, food safety concepts, changing trends and interests, legal requirements of food establishment

### ICGN 111 | Physics for CEO

4

Prerequisites: None

Basic concepts of physics impacting individuals and society on a daily basis: physical quantities, Newtonian mechanics and dynamics, energy and heat, electricity and magnetism, light and sound, and the electromagnetic spectrum

# ICGN 113 Plants, People and Poisons 4

Prerequisites: None

The plant world; the way plants grow and reproduce; modern technologies used for improving agricultural methods; the basics of plant biology; the distinctions among major groups of plants; the social implications of plant use and abuse

#### **ICGN 114** The Scientific Approach and Society

4

Prerequisites: None

Scientific literacy; the process of science discovery; verification, its limitation, and the influence in various disciplines; human and animal research ethics; the critical analysis of current scientific articles; the life cycle of scientific knowledge; modeling in science

#### ICGN 115 Human Evolution, Diversity and Health

4

Prerequisites: None

Changing modern society; human ability; human body; human distinctiveness; human diversity; human evolution; human health; human origins; primate diversity; scientific advancements

#### Understanding and Visualizing Data ICGN 116

4

Prerequisites: None

An introduction to data analytics; roles and examples of the data-driven decision making; technology landscape; data kinds and types; data sources and collection techniques; data storage and standard formats; data processing workflow; summary from data; different types of visualization; data visualization tools

#### ICGN 119 Computer Essentials

4

Prerequisites: None

Developing the digital literacy relating to the computer literacy and the information literacy; the computer hardware and its general functions; the operating systems; software packages and their daily use; computer security; the ethical use of the intellectual property

#### ICGN 123 The Earth's Dynamic Structure

4

Prerequisites: None

Introducing fundamental concepts and applying general geology at the beginning level; basic concepts of physical geology, emphasizing on surficial and deep earth processes, including minerals; rocks and their formations, crustal deformation, plate tectonics; weathering and erosion, formation of landscapes, geological resources and environmental geology

#### **ICGN 124** Climate Change and Human Society

4

Prerequisites: None

Human activities and the global climate; consequences for human society; consequences for the essential life support systems; perspectives on human health and diseases; adapting to global climate change; mitigating global climate change; an optional field visit included

ICGN 126 Plant Society 2

Prerequisites: None

People interacting with the plant and fungal worlds; differences among cultures and the indigenous uses of medicinal, textile and food plants; the benefits, problems and social implications of their use; hands-on experiences with techniques and methods used by field scientists

ICGN 127 Practical Mathematics 2

Prerequisites: None

Fibonacci numbers and the golden ratio, voting and election, data interpretation, probability, cryptography, financial mathematics

ICGN 128 Climate Emergency, Biodiversity Crisis, and Humanity at Risk 2

Prerequisites: None

Anthropogenic activities; biodiversity crisis; biodiversity loss; biological diversity; climate change; climate crisis; climate emergency; ecosystem functions; harmful and unsustainable practices; humanity at risk; mitigation and adaptation; threats, impacts and consequences

ICGN 129 Programming for Problem Solving 4

Prerequisites: None

Influence and impact of computer science on everyday life and society; the problem solving process in programming: abstraction, problem decomposition, algorithms; programming basic; privacy, ethical, and legal issues related to the software development

ICGN 130 Cryptography: The Science of Making and Breaking Codes 2

Prerequisites: None

Classical cryptography; cryptosystems; the shift cipher, the substitution cipher, the Hill cipher, the permutation cipher, the stream ciphers; the RSA encryption; cryptanalysis

ICGN 134 Introduction to Artificial Intelligence 2

Prerequisites: None

The artificial intelligence terminology; machine learning types and techniques; guidelines for building the machine learning model; neural networks; an evaluation in the AI system; the real-

world artificial intelligence; the future trends of the artificial intelligence; dangers and threats of the artificial intelligence

ICGN 136 Creator Workshop

2

Prerequisites: None

Sustainable energy usage and responsible production, Design thinking and problem-solving with 3D designing and fabrication, Finite Element Analysis, Community engagement via I-fix-it project to restore broken appliances obtained from communities

ICGN 137 Star Wanderer

2

Prerequisites: None

Basic ideas of sky observations since the ancient time of humanity; motion of the sky; cycles of the Sun and Moon; development of tools used in sky observations; the progress of human understanding of the universe; the impact of the scientific method on astronomical observation; the Earth & Moon; the Solar System; the lifecycle of stars; the Milky way; modern sky survey

ICGN 138 Cosmetics Chemistry

2

Prerequisites: None

Chemistry of cosmetics products; basic science behind cosmetics and aesthetic medical procedures; basic biochemistry of human skins; basic function of aesthetic medical equipment such as HIFU, IPL, Lasers, and RF

ICGN 140 Food Energy for Health

2

Prerequisites: None

Basic chemistry and functions of energy yielding nutrients; Understand food labels and portion sizes. Estimate daily energy from food; Balance energy intake and expenditure

ICGN 141 Life in the Sea

2

Prerequisites: None

Fundamental structures and functions of marine and freshwater life; cell to underwater ecosystem levels of organization; underwater life processes for energy, nutrients, reproduction, growth and development; evolution and biodiversity of underwater life; marine and freshwater biomes; current health and environmental issues under SDG 14 life in the sea; field trip included

ICGN 142 Energy and the Environment

2

Prerequisites: None

Various forms of energy and their conversion processes, fossil fuels and renewable energy sources, Environmental consequences associated with each energy source, Energy efficiency and conservation, Future energy technologies

ICGN 143 Gaia: Life on Earth 2

Prerequisites: None

Fundamental structures and functions of life; cell to biosphere levels of organization; life processes for energy, nutrients, reproduction, growth and development, evolution and biodiversity; service learning and field trip opportunities to participate in mitigating current environmental, health or development issues through life science-based solutions

ICGT 101 Technology-Enhanced Learning: Harnessing AI & Digital Tools for Academic Success 2

Prerequisites: None

Al principles and educational impacts, Technology-enhanced creative learning methods, Ethical use and bias awareness in Al applications, Educational technology tool exploration, Al-driven content analysis techniques, Al tool selection and evaluation, Critical assessment of Al-generated materials, Learning personalization with technology

ICGT 102 Digital Document Management 2

Prerequisites: None

Demonstrate formatting and applying consistent styles in a variety of online platforms; preparing and including digital content; construct file management systems for organizing, storing, and searching materials through metadata; Integrating data from spreadsheets, database to create reports

ICGT 103 Computational Thinking 2

Prerequisites: None

Solving problems in a systematic manner; breaking down a problem into a manageable size; extracting the most important elements of the problem; identifying recurring behaviors in the problem; developing solutions; articulating solutions in a way that is simple yet accurate enough for a computer or even a human to follow

ICGT 104 Tell a Great Story with Data 2

Prerequisites: None

Influence decision with compelling narratives constructed from data; the power of storytelling; determining the purpose; understanding the audience; planning plotlines; creating narrative structures; developing the data story; ethical considerations in data storytelling

ICGT 105	ICGT 105 No-Code Application Development	

Prerequisites: None

Creating software applications without needing to write code; common features of no-code platforms; strategies for choosing no-code platforms; basics of user-friendly interface design, workflow logic, and data storage; using templates and plugins to simplify the development, testing and revising applications; online resources and support communities for further learning outside the classroom

ICGT 106	Data and Spreadsheets	2

Prerequisites: None

Demonstrating proficiency in using lists, function, formulas, filters; importing and transforming socio-economic and/or science-related data from the internet or other databases; providing information to other programs through embedded or link objects; illustrating findings through charts, map charts, conditional formatting, and sparklines

ICLL 102 Skills for a Digital World	2
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Prerequisites: None

Twenty-first century skills for digital economy through learning or training activities in various topics including e-Commerce, Blockchain technology, and data science, or other selected activities approved by the academic advisor and Curriculum Administrative Committee

# Intercultural & Global Awareness Literacy

ICGH 107	Contemporary Art and Visual Culture	4
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Prerequisites: None

Focusing on current issues in society as reflected in the new media utilized in art today; an analysis of images and group discussions regarding social and historical contexts of contemporary art; creative thinking skills; effects of globalization on the visual world; connections between global and local issues; an investigation of broader social and cultural matters such as ideology, gender, race, and ethnicity

ICGH 109	Creative Thinking Through Art and Design	4

Prerequisites: None

Combining hands-on studio experiences with demonstrations, lectures and discussions; developing creativity and gaining confidence in communicating one's own unique vision; exploring a variety of art and design mediums; understanding the elements of the visual language; implementing the creative process and creative thinking to develop individual solutions to open-ended problems

ICGH 110 Drawing as Visual Analysis

4

Prerequisites: None

Developing creativity and cognitive learning skills; utilizing visual communication, design and art principles; mark making; observation, analysis, record, representational plant and still life forms; practice, application, techniques for conventional pencil drawing tools: shape, form, perspective, lines, shading, value, negative space, texture, composition; observation; scientific illustration, realistic representational observation

# ICGH 115 Cinematic Language and Applications

4

Prerequisites: None

An introduction, practice and an application of languages to critical thinking and analysis; examining key film languages and textual examples, including narrative theories; genre, film theories; an analysis of key film texts; the development of skills in research, writing and analytical thinking; applied knowledge to creative works; the presentation of original ideas and reflection on the craft approach

# ICGH 116 World Cinemas

4

Prerequisites: None

An introduction, practice and an application of languages to critical thinking and analysis of key world cinema texts; principal critical methods and theoretical debates of film theory; theoretical perspectives including structuralism, semiology, Marxism, feminism, psychoanalysis, post-structuralism, and cultural studies; questions of narrative and narration, realism, formalism, modernism, postmodernism, postcolonialism, gender, sexuality, and ideology

# ICGH 117 Drawing as Creative Expression

4

Prerequisites: None

Develop creativity and cognitive learning; utilize visual communication, design and art principles; experience multiple tools, techniques, medium, experimental mark making; research, analysis, observation, gesture, principles and elements of design and composition; examine, analyze, observe and reinterpret the human figure, plant and still life forms; research, interpret, evaluate, analyses contemporary artists; personal evaluation; personal expression

# ICGH 118 Photography Visualizing in the Digital Age

4

Prerequisites: None

Basic skills and aesthetic principles of photography, how the camera works, types of cameras and digital image capture, techniques in taking pictures, in camera editing, specialized forms of photography, simple editing adjustments, the aesthetics of picture taking

ICGH 120 Thai and ASEAN Cinema

4

Prerequisites: None

An introduction, practice and an application of languages to critical thinking and analysis of Thai and ASEAN film texts; examine key film languages and textual examples, including narrative theories; genre, film theories; an analysis of key film texts; the development of skills in research, writing and analytical thinking

ICGH 124 Life Drawing and Anatomy

4

Prerequisites: None

An introduction, practice and application of observation drawing to record the human form; including key principles of composition, gesture and observation drawing techniques and design skills for static, gesture and motion poses; understanding record and identifying the anatomical make-up of the human form in muscles and skeletons; technical proficiency with suitable media for observation drawing; studio practice; hand-drawing from observations

ICGH 128 Internet Celebrity, Culture and the Media

4

Prerequisites: None

An examination of the Internet Celebrity phenomenon and the emerging online culture; focusing on the circulation of social media texts and images associated with the Internet Celebrity; i.e. bloggers, influencers, content creators, the construction of their practices, self-branding techniques, emphasizing on the discourse of labour, the impacts, the influences of cultural trends, and the ethical issues; encouraging students to draw on an online creative work in contemporary media culture

ICGH 130 The Logic Lab: Crafting Coherent Arguments

2

Prerequisites: None

Introducing comprehensively formal and symbolic logic, by focusing primarily on categorical logic and truth functions, fundamental principles of logical reasoning with the goal of gaining a solid understanding of analyzing basic arguments, translating propositions, and evaluating truth-values

ICGH 132

The Rise and Fall of Ancient Athens

2

Prerequisites: None

Inquiring into the historical, philosophical and social circumstances involving the establishment, rapid growth, and eventual demise of the city state of Athens in the Archaic and Classical Periods of Ancient Greece

ICGH 135 The

The Horror Film

2

Prerequisites: None

Investigating the horror film as one of the earliest and most notable cinematic genres, by considering its historical development with examples from both Western and International cinema and by examining the most iconic themes of horror across the ages

ICGH 137 | Apocalypse Now, or Never, or Maybe?

2

Prerequisites: None

Pondering the changes of the past two hundred years, especially when it comes to life expectancy, health, and standards of living, and examining in this light the evidence we have for thinking that we are living on the brink of disaster; considering the psychological dimension to our dissatisfactions; discussing the major demographical changes we are currently undergoing; exploring questions around resource shortages, and food supplies; reflecting on our energy needs and realistic ways of meeting them, as well as the uses, dangers, and fears around artificial materials like plastics; exploring the complex questions we face around global warming

ICGH 139 Spirituality, Sustainability, Ecosystems

2

Prerequisites: None

Spirituality's Sustainability Implications for Ecosystems: Bio-diversity, eco-justice, environmental ethics, environmental justice, faiths, spirituality, religious diversity, social equity, social justice, ecosystems, ecosystemic balance, (non-)anthropocentrism

ICGH 141 SPQR—Glimpses of Rome

2

Prerequisites: None

Imagining Rome as it came to be in its "golden age" under the emperors Trajan and Hadrian; reflecting on slavery in Rome, the meaning of bread and games, charioteers and gladiators; contemplating the ways of traditional Roman religion; returning to the founding of the city, to understand how it all began; surveying the end of Roman monarchy and the conflicts between the social classes (Secession of the Plebs); examining Rome's wars with invading Gauls and with the Carthaginians; reviewing the Roman constitution in its heyday, as described by Polybius; tracing the descent into social turmoil and civil war from the Gracchi brothers to the permanent dictatorship of Julius Caesar; sketching out the transition to the principate under Augustus and the Roman imperial period

ICGH 145 | Essentials to Photography, Skills and Practices

2

Prerequisites: None

An introduction to major genres of photography including documentary, art, journalism, portraiture, still life, fashion, and landscape; exploring the ethics of publishing photography on the World Wide Web, emphasizing creative collaboration, problem-solving in engaging with real-world issues and

communities, utilising the photographic abilities and visual storytelling narratives to contribute positively to society and promoting sustainable practices and social change

ICGH 146 Acting for Self-Discovery and Empathizing with Others 2

Prerequisites: None

Exploring basic acting principles; leading to self-discovery, and empathy with others; studying breathing, body, voice, movement, mind; understanding strength, weakness, fear in oneself; approaching cognitive empathy, emotional empathy, compassion, sympathy through role play, scenework so as to understand others who are different; fostering authentic connection with self, relationships with others, and how to live in the world of various identities and beings

ICGH 147 Myth and the Masks of the Divine 2

Prerequisites: None

Delving into the ancient Greek mythology as it has come down to us through Hesiod and Homer, and by many more recent retellings, as well as the Nordic tradition codified in the Eddas; reflecting upon the meaning and relevance of such tales about gods and heroes through classic commentaries by Thomas Carlisle, James George Frazer, Joseph Campbell, and other more recent thinkers

ICGH 148 Quest for Global Justice: A Philosophical Inquiry 2

Prerequisites: None

Embarking on a philosophical journey, delving into the question: Is global justice possible? Engaging in critical analysis with an eye on case studies by examining the structural barriers and systemic inequalities that hinder the realization of global justice; through the lens of political theory and moral philosophy, confronting pressing questions about power dynamics, distribution of resources, and cultural diversity

ICGL 101 Elementary German I 4

Prerequisites: Placement Test

Greetings, introducing oneself or others, German alphabet and phonemes, personal information, numbers from 1-100 and price quotations, expressing wishes, telling the time and making appointments, quality of items, measurements; verb forms, pronouns, sentence structure, gender of nouns, accusative case and plural forms, negation

ICGL 102 Elementary German II 4

Prerequisites: Placement Test or ICGL 101 Elementary German I

Ordering and paying for meals in a restaurant, preferences of food and drinks, giving and asking for directions, reading a map, preferences of work conditions, job advertisements; essay writing, yes/no

questions, imperative forms, compound verbs, preposition with dative case, modal verbs I, German sentence bracket

## ICGL 103 Elementary German III

4

Prerequisites: Placement Test or ICGL 102 Elementary German II

Health advice and problems, healthy and unhealthy lifestyles, events and accidents, travel reports, curriculum vitae (CV); possessive articles in nominative, accusative and dative case, perfect tense, connectors, modal verbs II

## ICGL 111 Elementary Japanese I

4

Prerequisites: Placement Test

Hiragana and Katakana characters; fundamentals of basic Japanese grammar (noun-ending sentences, particles, demonstratives, verb-ending sentences, non-past and past tenses); scaffolding of basic vocabulary; basic communication about personal topics (self and others); description of Japan; designing written products in the target language; expressing existence, preferences, and agreement; comparing cultures

# ICGL 112 Elementary Japanese II

4

Prerequisites: Placement Test or ICGL 111 Elementary Japanese I

Kanji characters (approximately 50); fundamentals of basic Japanese grammar concepts (particles, verbs of giving and receiving, na-adjective-ending sentences, i-adjectives-ending sentences, non-past and past tenses, and classifiers); scaffolding of basic vocabulary; basic communication about daily life topics; designing written products in the target language; expressing simply points of view, describing people and daily life activities; comparing cultures

## ICGL 113 | Elementary Japanese III

4

Prerequisites: Placement Test or ICGL 112 Elementary Japanese II

Kanji characters (approximately 50); fundamentals of basic Japanese grammar concepts (verb conjugation (masu-form, te-form, nai-form, and dictionary form), and related sentence patterns; polite style of speech, and plain style of speech, particles); scaffolding of basic vocabulary; basic communication about various topics; designing written products in the target language; expressing points of view, describing people and various activities; comparing cultures

## ICGL 121 Elementary French I

4

Prerequisites: Placement Test

Fundamentals of basic French grammar (pronouns, present tense conjugation, gender/number, adjectives, prepositions); scaffolding of basic vocabulary; basic communication about personal topics (self and others); identifying and describing French speaking countries; designing written

products in the target language; expressing existence, preferences and agreement; comparing cultures

# ICGL 122 Elementary French II

4

Prerequisites: Placement Test or ICGL 121 Elementary French I

Fundamentals of basic French grammar (present and future tense, adjective gender, place & agreement, more complex prepositions, more complex questions); scaffolding of simple vocabulary; simple communication about daily life topics (in France and in their country); designing written products in the target language; expressing simply point of view, describing people and daily life activities; comparing cultures

## ICGL 123 Elementary French III

4

Prerequisites: Placement Test or ICGL 122 Elementary French II

Fundamentals of more complex French grammar (present and future tense, adjective gender, place & agreement, more complex prepositions, questions and past tense notions); scaffolding of more complex vocabulary; longer communication about daily life topics (in France and in their country); designing written products in the target language; expressing point of view, describing people and daily life activities; comparing cultures

# ICGL 131 Elementary Chinese I

4

Prerequisites: Placement Test

The Chinese phonetic system (Pinyin); the Chinese basic writing system (Stroke order); Chinese characters (approximately 100); fundamentals of basic Chinese grammar (interrogative pronouns,

the 的 particle, yes/no questions with 吗, demonstrative pronouns, classifiers, adverbs 也, 都); scaffolding of basic vocabulary; basic communication about personal topics (self and others); describing China; designing written products in the target language; expressing existence, preferences and agreement; comparing cultures

## ICGL 132 Elementary Chinese II

4

Prerequisites: Placement Test or ICGL 131 Elementary Chinese I

The Chinese phonetic system (Pinyin); the Chinese writing system; Chinese characters (approximately 100); fundamental Chinese grammar concepts (interrogative pronouns, classifiers, the "的" particle, "的" phrases, adverbials, continuous action sentence structures and reduplication of verbs); scaffolding of basic vocabulary; basic communication about daily life topics; designing written products in the target language; expressing simply points of view, describing people and daily life activities; comparing cultures

ICGL 133 Elementary Chinese III

4

Prerequisites: Placement Test or ICGL 132 Elementary Chinese II

The Chinese phonetics (Pinyin); Chinese characters (approximately 150); Fundamentals of basic Chinese grammar concepts (interrogative pronouns, modal verbs, complex sentences, the modal particle "le" ( $\mathbf{7}$ ), complements of state, complements of result, complements of duration); scaffolding of basic vocabulary; basic communication about various topics; designing written products in the target language; expressing points of view; telling directions; describing oneself and other people's abilities; comparing cultures

# ICGL 141 Elementary Spanish I

4

Prerequisites: Placement Test

Fundamentals of basic Spanish grammar (pronouns, present tense conjugation, gender/number, adjectives, prepositions); scaffolding of basic vocabulary; basic communication about personal topics (self and others); identifying and describing Spanish speaking countries; designing written products in the target language; expressing existence, preferences and agreement; comparing cultures

# ICGL 142 Elementary Spanish II

4

Prerequisites: Placement Test or ICGL 141 Elementary Spanish I

Fundamentals of basic Spanish grammar (pronouns, present tense conjugation, reflexive verbs, gender/number, adjectives, prepositions); scaffolding of basic vocabulary; basic communication about personal topics (self and others); identifying and describing Spanish speaking countries; designing written products in the target language; expressing existence, preferences and agreement; talking about daily habits

# ICGL 143 Elementary Spanish III

4

Prerequisites: Placement Test or ICGL 142 Elementary Spanish II

Towns, quarters and cities; directions; past experiences; present perfect tense, past tense indefinido; verbs ser, estar and hay; vocabulary of places; time markers for past tense; verbs empezar a+ infinitive; verbs ir / irse

# ICGL 160 Introduction to Thai Language and Culture

4

Prerequisites: None

Fundamental vocabularies and structures for various communicative situations in everyday use and introduce basic aspects of Thai culture

ICGL 161	Elementary Thai

4

Prerequisites: Placement Test

Listening and speaking skills on the following topics: introducing oneself one's friend and family, basic food and drink ordering, places, directions, transportation, buying tickets, clothing items, colours, and sizes, bargaining, counting and using classifiers, reading and writing Thai consonants, vowels placed after, before, above, and below the consonants, Thai numbers, live and dead syllables

## ICGL 162 Elementary Thai II

4

Prerequisites: Placement Test or ICGL 161 Elementary Thai I

Listening and speaking skills on the following topics: one's schedule, making appointments, favorite leisure activities, ordering food, drinks and desserts with special requests, presentation of one's plan for activities during school break, continuation of Elementary Thai I in reading and writing skills, consonant clusters, tone marks, words with special spelling rules, reading short paragraphs

## ICGL 163 Elementary Thai III

4

Prerequisites: Placement Test or ICGL 162 Elementary Thai II

Thai Writing for Specific Purposes in Workplace

Listening and speaking skills on the following topics: going to see the doctor, looking for a house for rent, seasons, travel and festivals

# \*for native Thai students

ICGL 164

2

Prerequisites: None

Thai writing for specific workplace purposes: blend of theoretical insights and practical exercises; composing emails, reports, proposals, and business documents; proficiency in clear, coherent, precise Thai communication

## ICGL 171 Diversities in Multilingual Societies

2

Prerequisites: None

Multilingual societies; Cultural diversities; Cross-cultural communication; Chinese-, German-, French-, Japanese, and Spanish-speaking cultures; Chinese-, German-, French-, Japanese, and Spanish languages; Cultural conflicts; Cultural gaps; Cultural shocks; Cultural discoveries; Cultural awareness; Cultural harmonies

# ICGL 172 Chinese Influence in Thai Society

2

Prerequisites: None

Cultural Exchange, Cultural Awareness; Overview of Chinese Ethinicity and community in Thailand: Exploring the historical, cultural, economic, and political dimensions of Chinese influence in

Thailand; Examining Chinese immigration waves have shaped Thai identity, language, cuisine, and religious practices

ICGL 173 Introduction to Japanese Societies

2

Prerequisites: None

Japanese societies; Cultural diversities; Ethnic minorities; Gender gaps; Descriminations against minorities; Gender role expectations; Aging populations; Japanese universities; Japanese school systems; Working in Japan; Workig with Japanese people; Living in Japan; Punctuality

ICGL 174 From Siesta to Fiesta: Introduction to Spanish and Latin American

Culture

Prerequisites: None

Introduction to Hispanic cultures: Spain, Mexico, Central America, South America, Caribbean; main cultural features; magic and colors of lands and people; cultural varieties; Spanish and indigenous languages; cultural legacy

# ICGL 201 Pre-Intermediate German 1

4

Prerequisites: Placement Test or ICGL 103 Elementary German III

Clothing and accessory, appearance, shopping for clothes and accessory family members, present and past families, statistics, festivities and culture, dates, presents; comparative forms of adjectives, modal verbs past tense, dependent clauses (cause and condition), personal pronouns, accusative and dative cases

# CCL 202 | Due leteure ediate Courses II

ICGL 202 Pre-Intermediate German II

4

Prerequisites: Placement Test or ICGL 201 Pre-Intermediate German I

Media usage and Internet-shopping, advertisement, expressing surprise, meeting someone for the first time, country and city life, cultural capitals in Europe; direct and indirect questions, adjective without article, relative clause and pronoun, modal verb in simple past, sub-clause with als

ICGL 203 | Pre-Intermediate German III

4

Prerequisites: Placement Test or ICGL 202 Pre-Intermediate German II

Professional biographies, job announcements, festivities and customs, emotions, movie synopsis, products and inventions; reasons with weil and denn, nominalization, preposition with dative, subclause with wenn and um zu, passive voice

 ICGL 211
 Pre-Intermediate Japanese I
 4

 Prerequisites: Placement Test or ICGL 113 Elementary Japanese III

Kanji characters (approximately 50); fundamentals of basic Japanese grammar concepts (verb conjugation (masu-form, te-form, nai-form, and dictionary form), and related sentence patterns; polite style of speech, and plain style of speech, particles); scaffolding of basic vocabulary; basic communication about various topics; design of written products in the target language; expressing points of view, describing people and various activities; comparing cultures

## ICGL 212 Pre-Intermediate Japanese II

4

Prerequisites: Placement Test or ICGL 211 Pre-Intermediate Japanese I

50 Kanji characters; explaining the state of things; describing necessary things to do in advance as preparations for the future; expressing own intentions, plans, and schedule; expressing own guess and inference; asking someone to take a message or conveying a message; stating standards or norms, when one explains the manner of doing a certain action or work; explaining a condition in which a certain action is performed; stating everyday habitual actions

## ICGL 213 Pre-Intermediate Japanese III

4

Prerequisites: Placement Test or ICGL 212 Pre-Intermediate Japanese II

50 Kanji characters; expressing judgments under certain conditions; stating a purpose or an aim; describing changes in human ability and conditions; describing an action performed by a third person, or an action when one feets annoyed or troubled, using passive verbs; expressing something with the most important information emphasized; describing natural phenomena, happenings, and events, together with their causes; clearly telling what speakers consider as questions, by using a question with an interrogative as a component of a sentence; using appropriate expressions for giving and receiving of things and actions, depending on the relationship between the giver and the receiver, in terms of social status; telling usage, evaluation, necessary time, expense, etc

#### ICGL 221 | Pre-intermediate French |

4

Prerequisites: Placement Test or ICGL 123 Elementary French III

Developing further knowledge of French grammar at the pre-intermediate level (present, past and future, more complex interrogative sentence, negative sentence, comparative and pronouns); scaffolding of more complex vocabulary; more complex and longer communication about personal needs, solving simple problems; interacting in predictable context topics in French; designing written products in the target language; expressing points of view, giving simple advices and interacting in daily life activities; comparing cultures

## ICGL 222 | Pre-intermediate French II

4

Prerequisites: Placement Test or ICGL 221 Pre-Intermediate French I

Extending further knowledge of French grammar at the pre-intermediate level (hypotheses and conditions, future, conditional, pronouns, direct and indirect speech, imperative and gerundive); scaffolding of more complex vocabulary; longer communication about solving problems and expressing feelings; commenting on attitudes and justifying actions in predictable context topics in French; comparing cultures

## ICGL 223 Pre-intermediate French III

4

Prerequisites: Placement Test or ICGL 222 Pre-Intermediate French II

Developing further knowledge of French grammar at the pre-intermediate level (comparative, complex interrogative sentence, gerundive, subjunctive present in regular and irregular forms, passive voice); scaffolding of more complex vocabulary; longer communication about personal feelings, wishes and hopes; complaining and talking about difficulties, suggesting solutions; comparing cultures

## ICGL 231 Pre-Intermediate Chinese I

4

Prerequisites: Placement Test or ICGL 133 Elementary Chinese III

Chinese characters (approximately 300); identifying pre-intermediate level Chinese grammar concepts (complements of duration, expressing approximate numbers, comparative sentences, complements of quantity, exclamatory sentences); developing listening, speaking, reading and writing skills through an integrated approach; communication about various topics; comparing two cities in various aspects; comparing the seasons in China and Thailand; activities and festivals in each season; organizing a trip

# ICGL 232 Pre-Intermediate Chinese II

4

Prerequisites: Placement Test or ICGL 231 Pre-Intermediate Chinese I

Chinese characters (approximately 300); identifying pre-intermediate level Chinese grammar concepts (past experiences, complements of frequency, the structure of 是.....的, reduplication of adjectives, S-P phrases, complements of result II, simple passive sentences); developing listening, speaking, reading and writing skills through an integrated approach communication about various topics; sports or entertainment; expressing unlucky stories; describing appearance and clothes; Chinese style weddings (1)

#### ICGL 233 Pre-Intermediate Chinese III

4

Prerequisites: Placement Test or ICGL 232 Pre-Intermediate Chinese II

Chinese characters (approximately 300); identifying pre-intermediate level Chinese grammar concepts (continuous actions or states, Chinese style weddings, Chinese construction quadrangles, existence emergence sentences,"把"sentence I, "把"sentence II, "被"sentence, adverb "又"); developing listening, speaking, reading and writing skills through an integrated approach;

communication about various topics; travelling by airplane; Beijing Opera performances; outdoor activities; reunions with old friends

ICGL 241 Pre-Intermediate Spanish I

4

Prerequisites: Placement Test or ICGL 143 Elementary Spanish III

Habits; pronominal verbs; porque/para; furniture and parts of the house; appearance; family, irregular verbs in present tense; present progressive

## ICGL 242 | Pre-Intermediate Spanish II

4

Prerequisites: Placement Test or ICGL 241 Pre-Intermediate Spanish I

Leisure activities; intentions and projects; pain, discomfort and symptoms; parts of the body; vocabulary of food; ir a+ infinitive; present perfect; differences between ser and estar; personal pronouns for objects; verb gustar

## ICGL 243 Pre-Intermediate Spanish III

4

Prerequisites: Placement Test or ICGL 242 Pre-Intermediate Spanish II

Past habits, customs and circumstances; past and present actions; advice, instructions (imperative); future situations and actions, conditions, hypotheses; past experience; imperfect verb tense; indefinido verb tense; present perfect verb tense; contrast of past tenses

### ICGN 125 Games and Learning

2

Prerequisites: None

History of games, combinatorial games, games of chance, game theory

ICGS 112	Geography of Human	Activities
1	HOPIADIIV OLDUINALI	ACHVIHES

4

Prerequisites: None

Global Learning Initiative class; a systematic study of patterns and processes of geography; understanding human perceptions of surroundings and alterations of the earth's surface; diversity of cultures, beliefs, and ways of life; establishing global unity and harmony; recognition of equality and respect between persons in diverse regional geographical settings; raising awareness of one's own humanity and human responsibilities; the interrelationship between humans and the spaces they create; human activity as interdisciplinary by nature; the physical and socially created environment people live in; human interactions shaping the human understanding of the environment; the utility of resources; phenomena on the earth's surface relating to human actions; concepts and geographical methodologies; examination of social organizations and environmental consequences; a broad dynamic domain reflecting such developments and issues as social bias, discrimination, and stereotyping in the contemporary world; associating a critical geographical perspective on the past, present and future achievement of the social world

ICGS 128	Global Gastronomy	and	Cuisines
1005 120	alobal dastronomy	ariu	Cuisiries

Prerequisites: None

Understanding the interconnection between gastronomy, culture, society, and local and global food systems; highlighting the global food production and consumption trends; examining diverse cultures through the food and food preparation; emphasis on multicultural context in cooking practices; understanding the current trend in various healthy diets and cuisines

## ICGS 131 Introduction to International Studies

4

Prerequisites: None

The field of international studies; interdisciplinary approaches; economic globalization; the Bretton Woods system and neoliberalism; political globalization; the United Nations system, the International Court of Justice, and Human Rights; cultural globalization; migration diaspora and transnationalism; the internet and global media; development; modernization and dependency; Global North and Global South; traditional and human security; food; health; energy; environment

## ICGS 132 | Career Preparation in a Globalized World

4

Prerequisites: None

Trends in national, regional and international job markets; self-assessment on career options; career plan creation; principles in business communication; job search process and tools; resume, cover letters; interview preparation and simulation; dimensions of culture

# ICGS 133 Foundation of Mediterranean Cultures

4

Prerequisites: None

The Mediterranean as a source of Western culture; Egypt and the Fertile Crescent; Mohammed and the Muslim World; the Promised Land: Moses' Israel; Jesus and the birth of Christianity; Greek history and civilization; Ancient Italy; arts in Florence and Venice; Modern Italy history; Italian food; the World of Fashion in modern Italy; Italian film; Italian music

International College

## ICGS 137 Witchcraft and Gender Representation

4

Prerequisites: None

The term "witch" used to suppress women: accusations of witchcraft to eliminate strong, assertive women; accusations of demonic or magic sources demeaning to women; European, American and African use of witch accusations to stifle women; other forms of oppression of women: the Chinese foot binding, the Indian Suttee, the African genital mutilation; the meaning of gender; gender vs sex; marginalization of women in patriarchal societies; women's rights in the contemporary world; differing concepts of women's rights; global and national enforcement of women's rights; organizations concerned with gender and women's issues: UN, ILO, etc; an application of gender rights to other genders like LGBTQ

4

ICGS 143	Introduction to Air Transport and Tourism	4
Prerequisites	None	
Basic overvie	ew and knowledge of air transport, travel and tourism and the inte	erconnections
amongst thes	se elements; the history of air transportation, both airlines and airports;	the role of air
transport for	today's travellers and tourists; relationship between airport and a	irline, airport
business mo	del, airline business model, the nature of air travellers, the nature of	demands, air
transport jou	rney and experience, passengers/tourist decision makings on air travel, o	current global
issues (e.g., e	conomic, environmental and ethics) of the air transport and tourism	
ICGS 156	Fashion and Society	2
Prerequisites		
•	on, History of fashion since the 20th Century, Fashion reflects its tempor	al and spatial
	ion and culture, sub-cultural fashion (street fashion), Fashion and Art o	•
Fashion as ar	n art form, Fashion and business, Fast fashion, Fashion victims	·
ICGS 157	Asian Religious Traditions	2
Prerequisites	: None	
Overview of	major religious traditions in Asia, including Hinduism, Buddhism, Sikh	nism, Taoism,
Confucianism	n, and Shintoism; Historical evolution of Asian religious traditions; Significa	nce of rituals,
symbols, and	I sacred texts; Key philosophical and ethical concepts such as karma, dha	arma, nirvana,
and the Tao	Mahidol University	
ICGS 159	The Self and Modern Media	2
Prerequisites	international conege	
A sociologic	al approach to understanding the disintegration of old social st	ructures and
reintegration	based on contemporary technology and social media; the new non	-geographical
communities	and the lack of norms; development of a global culture; the role of	of media and
advertising in	the new global culture; the generational theory of culture and construc	tionist theory
or reality; the	e new global self	
ICGS 161	Skills in Dealing with People Across Cultures	2
Prerequisites	,	
'	t of skills in dealing with people across cultures through a psychologic	cal approach.
·	ntity formation and conflict, values and communication across culture	
-	k motivation, and culture in educational institutions	
ICGS 162	Arts, Culture and Tourism Development	2
1000 102	7410, Callare and Tourism Development	

Prerequisites: None

Artistic categories and roles of arts in soceity, community arts activities and events - processes and outcomes, arts-led urban regeneration, current trends in cultural tourism, online travel platform, creative tourism and designing visitor experiences

ICGS 165 Tea Studies 2

Prerequisites: None

What is tea, main tea varieties, main tea types, climatic condition for sustainable growth of tea, important tea growing countries and regions, tea processing, tea and health, tea evaluation, tea utensils and preparation, tea and food paring

ICGS 167 Coffee Studies 2

Prerequisites: None

Coffee, an introduction; The journey of Coffee - a journey of love, tears, sweats and blood; Three waves of coffee; Terroir of coffee; Main and sub-varieties of coffee; The world of coffee; Coffee drinking culture, coffee cupping; From harvesting to shipment; From roasting to brewing; Coffee and health; Ethical and environmental issues

ICGS 168 Faith a Lifestyle 2

Prerequisites: None

Faith, spirituality, and interaction in the modern world, spirituality and its economy, spirituality and faith marketing, modern forms of spirituality, spirituality, pop culture, and the soft power

ICGS 180 Cafe Story and Slow food 2

Prerequisites: None

Café concept: historically integral coffeehouse in café culture and social/economic position; slow food in sustainability business concept, specialty food and beverage evolution, new business trends

ICGS 181 Cuisine and Culture 2

Prerequisites: None

Exploration of how food shapes and is shaped by culture, Food as a cultural symbol, Historical evolution of culinary practices, Spices in cultural identity and economy, Food in celebrations and rituals, Festival foods around the world, Food Ethics and Sustainability, The phenomenon of culinary fusion and its impact on traditional cuisines, The Language of Food, Religious and cultural influences on dietary practices, The Art of Dining Ethiquette, Food in Literature and Film, The Future of Food, Culinary Tourism

ICGS 182 Humor Horizons 2

Prerequisites: None

Introduction to Cultural Humor; Language and Wordplay; Stereotypes and Satire; Historical Perspectives; Regional Comedy Traditions; Social Commentary Jokes; Comedy in Film and TV; Cross-Cultural Comedy Challenges; Humor and Identity; Humor in Business; The Future of Cultural Humor

## Civic Literacy

ICGH 126 Beh	navioral Ethics: Why Good People Do Bad Things	2
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Prerequisites: None

Foundations of behavioral ethics, assumptions of ethical decision making, process of ethical decision making, cognitive errors in ethical decision making: incrementalism, self-serving bias, tangible and abstract, loss aversion, framing, and overconfidence, social and organizational pressures in ethical decision making, situational factors in ethical decision making

|--|

317

Prerequisites: None

Starting from Socrates' quest for wisdom as described in the Apology, and the difficulties he encountered as a consequence, leading up to his trial and death sentence; connecting the Apology to Plato's Allegory of the Cave, and the dialectical method of ascent towards the truth; wondering whether Marcus Aurelius may qualify as a philosopher-kind, and exploring the connections with Stoicism as taught by Epictetus; reflecting on Montaigne's contemplations of death; connecting such ancient models to strains of thought in Thoreau and Emerson, Schopenhauer and Nietzsche, Freud and William James, Albert Camus and Viktor Frankl

ICGH 133	Socrates, His Predecessors and Successors	2
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Prerequisites: None

Surveying the major philosophical movements in Ancient Greece, including the Presocratics, Socrates, Plato and Aristotle, and the various Hellenistic schools, by focusing on themes related to knowledge, truth, art, psychology, justice and the good life, and considering their relevance to life today

ICGH 134	Digital Media Literacy: Skills for 21st Century Learning	2

Prerequisites: None

Integration of media literacy, media production, and media ethics; accessing, analyzing, evaluating, questioning, and producing media texts; social, cultural, and political implications of media;

representations in media; media as political economy; media aesthetics; media and influence; audiences negotiating meaning

ICGH 138 The Philosophies of Asia

2

Prerequisites: None

Exploring the major schools in Asian Philosophy, including Buddhism, Hinduism, Confucianism, Taoism, Jainism, among others, through a survey of foundational concepts and themes and an analysis of the implications that they have on ethics and culture as well as contemporary political, economic and legal frameworks

### ICGH 140 Ethics and Evolution

2

Prerequisites: None

Scrutinizing the relationship between the theory of natural selection and ethics, through an examination of the implications of Darwinian evolution on the status of moral claims, the significance of our evolutionary history on moral theory and practice, and the relevance of these intersections on the development of morally justifiable policies and individual decision-making

ICGH 149 Law, Technology, and Society

2

Prerequisites: None

Foundations of the relationship between law, technology, and societal values, how laws evolve with technological innovation, the ethical considerations at play, and the role of law in shaping and responding to societal changes. Current and emerging issues in technology law, including intellectual property, privacy, cybersecurity, and regulation of AI

## ICGH 150 Global Perspectives on Free Expression in the Digital Age

2

Prerequisites: None

Delving into the intricate dimensions of free expression on a global scale, particularly in the digital realm, tracing the evolution of free speech and contemplating its philosophical foundations and historical context. Examining pivotal case studies and real-world examples, exploring the complexities of free expression, from its role in fostering democracy to its challenges in relation to the notion of Human Rights and navigating a contemporary culture of feeling 'offended'

# ICGN 131 | Digital Search Literacy

2

Prerequisites: None

The Information literacy relating to search term, the evaluation of the internet site and the quality of data; use of information; the ethical use of the intellectual property; the use of computer platforms; software, online services

ICGN 132	Digital Security and Privacy	2
Prerequisites:	None	
Privacy rights	of data and safeguarding personal information by the protection	organizations,
anonymizing	of data, computer security relating to computer platforms, network,	internet and
smart devices	s; password managements and shortcomings, authentication factors and	d technology
ICGN 144	Environmental Ethics	2
Prerequisites:	None	
Foundations	of Environmental Values, Anthropocentrism vs Ecocentrism, Deep I	Ecology, Eco-
Feminism, La	nd Ethics, Energy Ethics, Wilderness vs Built Environments, Radical Envir	ronmentalism
and its Societ	al, Economic and Policy Implications	
ICGN 145	Food Integrity and Food Fraud: When a Food Product Is Not What It Seems	2
Prerequisites:	None	
Understand t	he food integrity matrix, recognise common types of fraudulence in fo	ood products,
their factors a	and effects on public health and society, prevention, ethical responsibili	ties and roles
	A CONTRACTOR OF THE PROPERTY O	
of food busin	ess and consumers in the food system with food integrity	
of food busin		4
	ess and consumers in the food system with food integrity  Is Democracy Good?	
ICGS 134 Prerequisites:	ess and consumers in the food system with food integrity  Is Democracy Good?	4
ICGS 134 Prerequisites: Democracy a	ess and consumers in the food system with food integrity  Is Democracy Good?  None	4 ut the world,
ICGS 134  Prerequisites: Democracy a especially sin	ess and consumers in the food system with food integrity  Is Democracy Good?  None  s a political system and a 'normal' form of governance throughout	4 ut the world, s; democracy
ICGS 134  Prerequisites: Democracy a especially sin as a highly c	ess and consumers in the food system with food integrity  Is Democracy Good?  None  Is a political system and a 'normal' form of governance throughout the transitional Third Wave of democratization ending in the 1990'	4 ut the world, s; democracy nents of Thai
ICGS 134  Prerequisites: Democracy a especially sin as a highly c Style Democ	ess and consumers in the food system with food integrity  Is Democracy Good?  None  Is a political system and a 'normal' form of governance throughout the transitional Third Wave of democratization ending in the 1990' contested term; forms of governance; contestations in Thailand; argun	4 ut the world, s; democracy nents of Thai perception of
ICGS 134  Prerequisites: Democracy a especially sin as a highly constitution of the style Democracy; constitution of the s	ess and consumers in the food system with food integrity  Is Democracy Good?  None  Is a political system and a 'normal' form of governance throughout the transitional Third Wave of democratization ending in the 1990' contested term; forms of governance; contestations in Thailand; argunatracy; defining democracy; different forms of democracy; local paracy; defining democracy; local paracy; l	4 ut the world, s; democracy nents of Thai perception of
ICGS 134  Prerequisites: Democracy a especially sin as a highly construction of the street of the st	Is Democracy Good?  None Is a political system and a 'normal' form of governance throughout ce the transitional Third Wave of democratization ending in the 1990' contested term; forms of governance; contestations in Thailand; argumetracy; defining democracy; different forms of democracy; local partical debate on the merits of democracy; functionality; theoretical and alitative and quantitative analysis; democratic performance	4  ut the world, s; democracy nents of Thai perception of d in pragmatic
ICGS 134  Prerequisites: Democracy a especially sin as a highly construction of the street of the st	Is Democracy Good?  None Is a political system and a 'normal' form of governance throughout ce the transitional Third Wave of democratization ending in the 1990' contested term; forms of governance; contestations in Thailand; argumeracy; defining democracy; different forms of democracy; local pritical debate on the merits of democracy; functionality; theoretical and alitative and quantitative analysis; democratic performance  Social and Health Issues in Thailand	4 ut the world, s; democracy nents of Thai perception of
ICGS 134  Prerequisites: Democracy a especially sin as a highly construction of the style Democracy; constructions; quality in the style of the styl	Is Democracy Good?  None Is a political system and a 'normal' form of governance throughout the transitional Third Wave of democratization ending in the 1990' contested term; forms of governance; contestations in Thailand; argumetracy; defining democracy; different forms of democracy; local pritical debate on the merits of democracy; functionality; theoretical and alitative and quantitative analysis; democratic performance  Social and Health Issues in Thailand  None	4 ut the world, s; democracy nents of Thai perception of d in pragmatic
ICGS 134  Prerequisites: Democracy a especially sin as a highly construction of the street of the st	Is Democracy Good?  None Is a political system and a 'normal' form of governance throughout the transitional Third Wave of democratization ending in the 1990' contested term; forms of governance; contestations in Thailand; argumetracy; defining democracy; different forms of democracy; local pritical debate on the merits of democracy; functionality; theoretical and alitative and quantitative analysis; democratic performance  Social and Health Issues in Thailand  None health issues in Thailand; experiential learning approach; site visit	4  ut the world, s; democracy nents of Thai perception of d in pragmatic  4
ICGS 134  Prerequisites: Democracy a especially sin as a highly construction of the style Democracy; constructions; quality in the style of the styl	Is Democracy Good?  None Is a political system and a 'normal' form of governance throughout the transitional Third Wave of democratization ending in the 1990' contested term; forms of governance; contestations in Thailand; argumetracy; defining democracy; different forms of democracy; local pritical debate on the merits of democracy; functionality; theoretical and alitative and quantitative analysis; democratic performance  Social and Health Issues in Thailand  None Inealth issues in Thailand; experiential learning approach; site visite and non-governmental organizations; small groups work; identification	4  ut the world, s; democracy nents of Thai perception of d in pragmatic  4  us to various of issues and
ICGS 134  Prerequisites: Democracy a especially sin as a highly construction of the style Democracy; constructions; quality of the style of the style Democracy; constructions; quality of the style of	Is Democracy Good?  None Is a political system and a 'normal' form of governance throughout the transitional Third Wave of democratization ending in the 1990' contested term; forms of governance; contestations in Thailand; argumetracy; defining democracy; different forms of democracy; local pritical debate on the merits of democracy; functionality; theoretical and alitative and quantitative analysis; democratic performance  Social and Health Issues in Thailand  None health issues in Thailand; experiential learning approach; site visit	4  ut the world, s; democracy nents of Thai perception of d in pragmatic  4  us to various of issues and e issues and

Fake News, Censorship and the Politics of Truth

4

ICGS 140

Prerequisites: None

Internet and hyper news flows; patterns of information consumption; knowledge of information authenticity; socio-political effects of 'fake news'; impacts and methods of data collection; censorship and contested 'digital space', fact-checking, source evaluation and trust-building online; social power of algorithms, quantification and profiling; citizens journalism and the traditional media

#### ICGS 147 Women in Leadership

4

Prerequisites: None

Prominent female leaders around the world from the past to present; cross-cultural challenges female leaders encounter; heroines and women warriors in folklores and myths; the perception and sins of matriarchal societies; political roles and suffragette movements around the world; the Modern Girl and consumerism; women's rights movement, glass-ceiling and female career advancement, female attributes and leadership qualities

#### ICGS 158 Contemporary Issues in Thailand

2

Prerequisites: None

Prevailing ideological issues; contemporary political economy; legal affairs and the judicial system; religious institutions; provincial politics; land rights and other community movements, education and reform; environmental groups; media affairs

#### ICGS 160 Self and Society

2

Prerequisites: None

A sociological approach to understanding the nature of societies, cultures and institutions; the development of the self through the socialization process from Social Interactionist and Critical Theory perspectives; cultural norms and geographical influence on culture: social class and gender structures; the influence of individualism and non-conformity in society

#### ICGS 163 Popular Media and Conflicts

2

Prerequisites: None

The role of popular media during the war-time and conflicts; the evolution of media and its employment by the state; printed propaganda; the age of radio and its political agenda; newsreels during the wartime; televised wars and public opinions; the emergence of social movement caused by the popular media

#### ICGS 166 Power and Politics

2

Prerequisites: None

The understanding of politics and political systems of the current world; interactions and connections of different ideas; systems of thought and conflict in contemporary society; analysis of political phenomenon. To collect information, organize information, organize in groups, analyze information, present clearly and concisely on political phenomenon, state typology, political taxonomy, ideological persuasion, voting systems and outcomes

2

ICGS 170 Civic Action in Thailand

Prerequisites: None

Local community organisations and institutions; effective social media and other promotional campaigns on behalf of independent social organisations; funding drives on behalf of independent social organisations; project planning and development

ICGS 183 Media and Community 2

Prerequisites: None

Application of media practices and techniques used as a means for empowerment and communication supporting community and social change; Application of assessment practices to support community goals and development; Application of project-based learning in a real community

# Finance & Management Literacy

ICGB 102	Navigating the Market Landscape	ivoxcity	2
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Prerequisites: None

Exploration of the dynamic interplay between consumer behavior and firm strategy across industries, guided by the supply-demand framework; practical insights into market dynamics, tool navigation through diverse market landscapes (degree of competition, digital economy, sharing economy), and impact on key stakeholders

ICGB 103 Decoding Economic News	2
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Prerequisites: None

Uncovering of economic news mysteries, deciphering of the big picture, and exploration of how economic forces shape our world through key macroeconomic indicators and the aggregate supply-aggregate demand framework; acquisition of practical skills for analyzing current economic events with clarity and insight, empowering navigation of global economic complexities with confidence

ICGB 104	Entrepreneurship in a Disruptive Environment	2
Prerequisites: None		

Understand how entrepreneurs create new businesses, capture new markets, and enhance organizational effectiveness so the economy could benefit. Applying disruptive innovation due to new technologies and innovation to deal with the disruptive changes as the new generation entrepreneurs

### ICGB 105 Personal Finance Literacy

2

Prerequisites: None

Personal finance literacy includes: financial planning process, life goals and financial goals, tax preparation, consumer credits, investment and retirement planning, investment fundamentals, its techniques and investment assets, making loan and debt decisions, life and property insurance, and estate planning

### ICGB 106 The Business of Fashion

2

Prerequisites: None

The fashion world, categorisation of fashion, glossary of fashion, fashion trend interpretation, fashion and creativity, brand image, understanding customers: national culture influences the choice of fashion, understanding customers: motivations for buying fashion, total shopping experiences, extension of the fashion business, consumerism

### **ICGB 107** Tourism Management Perspectives

2

Prerequisites: None

Overview of the tourism industry and its significance, factors shapping the future of tourism and hospitality, opportunities and challenges of tourism development in Thailand, tourism supply chains, key stakeholders and their roles in the tourism ecosystems, and innovative and promising practices in sustainable tourism development

#### ICGB 109 **Business Event Essentials**

2

Prerequisites: None

Event as a global strategic and management tool; introduce different types of business events to achieve various objectives including Meetings, Incentive Travels, Conventions, Exhibitions and Special Events; Event strategies

### ICGB 110 Management Styles of Effective Leaders

2

Prerequisites: None

Overview of management; evolution of Management theories and thoughts; changing environment of organizations, social responsibility, organizational culture and change

### ICGB 111 Leadership in a Global Society

2

Prerequisites: None

Concepts and practices for leadership development; developing leadership skills and challenges of change in a global society; the need, vision, initiation for change, teamwork and collaboration

ICGB 112 The Art of Pricing 2

Prerequisites: None

Rationales and conditions required for sellers to apply different prices to different groups, in order to maximize profits; benefits of first-, second-, and third-degree price discrimination; examples of the use of consumers' demographics and characteristics in buyers' classification; evaluation of certain complex pricing namely, bundling and versioning; which are invented by sellers as a means to price discriminate; assessment of pros and cons of algorithm pricing; the cost of profit-maximizing strategy particularly buyers' perception and fairness

ICGB 113 Crisis Management in Service Businesses 2

Prerequisites: None

Basics of crisis management, crisis preparedness and risk management, methods of analysis and prognosis, strategic measures of crisis management applied in service businesses, crisis planning and organizational measures applied in service businesses, crisis communication

ICGB 114 Cultural Strategies for Success: Unveiling Eastern Business Dynamics 2

Prerequisites: None

Introduce theories (change theories, cultural theories) and frameworks governing Eastern societies in the context of business; Eastern cultural practices and behaviors shaping strategies in competitive markets; Complexities of Asia's diverse business environment; Comparative analysis of strategies and behaviors

ICGB 115 Money: Deciphering Currencies of Value 2

Prerequisites: None

Navigating the intricate realm where money transcends tangible forms, from paper bills to digital transactions; unveiling the essence and construction of value inherent in these mediums, exploring their societal significance and evolving role in contemporary economies

ICGB 116 Managing Self and Working with Others 2

Prerequisites: None

Personal goal setting, personality models and profiling, self awareness and management, social awareness and interaction, techniques in working with others through the lens of diversity, equity, and inclusion, conflict resolution, people management, personal development plan

ICGH 101	Biotechnology: from Science to Business	4
Prerequisites:		
Biotechnolog	y, bioethics, and the law, biotechnology and the regulatory frame	work, genetic
testing, pater	nting life, biobanks and modern genomics research, genetically modific	ed organisms,
human and a	nimal testing; bioterrorism, biological weapons laws, bio-prospecting, ph	narmaceutical
pricing, the fu	uture of the human beings and post-humanism	
ICGS 102	Business Sustainability and the Global Climate Change	4
Prerequisites:	None	
Study on the	role of business in the society; the basic concept of sustainability; globa	l governance;
sustainable d	development; social inequalities and social inclusion; environment	sustainability;
climate chan	ge; climate change mitigation; climate change adaptation; green marke	ting; business
sustainability		
ICGS 135	Entrepreneurial Accounting	4
Prerequisites:		
Fundamental	accounting concepts; financial statements for small enterprises; financ	cial statement
analysis; cost-volume-profit analysis; management decision making; business taxation		
ICGS 153	Social Media Management for Service Sector	2
Prerequisites: Introduction	None to digital business transformation in service sector, social consume	rs and social
communities, social media landscape and ecosystem; social media strategy for service sector;		
	for social media management; social commerce; social media analyti	
measuremen		
ICGS 174	The Art of Leadership in Practice: Inspiration	2
Prerequisites:	None	
Virtue ethics and practical philosophy; driving change through personal development and action		
directives; managing ethical leadership goals and challenges; climbing Mount Impossible and the		
power to change the world; what is and what can be in the context of SDGs; finding inspiration		
and inspiring others; inspirational leaders in History and fiction		
ICGS 184	Healthy Habits, Happy Shoppers: Exploring Health Literacy in	2
	Consumer Decisions	

Prerequisites: None

Exploration of the impact of health literacy on shopping behavior; coverage of health literacy principles, consumer psychology, and marketing's role; learning through stimulus case studies to promote informed consumer choices

ICLL 101   Professional Development
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Prerequisites: None

Professional skills for 21st century workplace through learning or training activities in various topics including innovation management, start-up business, agile workplace or other selected professional development activities approved by the academic advisor and Curriculum Administrative Committee



# Specific Courses <u>Core Courses</u>

ICCS 205 Numerical Computation	4	
Prerequisites: ICCS 102 Coding for All; ICMA 106 Calculus I		
Taylor's theorem; roots of equations; interpolation; numerical integration and derivative; solutions		
to systems of equations; Monte Carlo simulation; optimization		
ICCS 206 Discrete Mathematics	4	
Prerequisites: ICMA 106 Calculus I		
Mathematical statements and logical deduction; proves and proof techniques inc	cluding direct,	
contradiction, contrapositive, induction, and invariants; summation, asymptotics, and	d recurrences;	
counting: combinations, permutations, and basic counting techniques; discrete pro	bability: finite	
probability space, events, conditional probability, independence, random variables	, expectation,	
variance, covariance, discrete distributions; graphs: tree, tree traversal, undirected gra	aphs, directed	
graphs, weighted graphs, Euler's tours, isomorphisms, spanning trees		
ICCS 309 Scientific Research and Presentations	4	
Prerequisites: ICCS 261 Principles of Data Science		
Scientific methods of discovery; developing a hypothesis, testing and interpreting of	of the results;	
proper format for presenting papers in public and in a scientific forum; practical	sessions and	
participation in scientific seminars mational College		
ICMA 106 Calculus I	4	
	•	
Prerequisites: Placement test or ICMA 101 Precalculus  Limits and continuity; differentiation and its techniques; derivatives of algebraic	- Logarithmic	
,	_	
exponential, and trigonometric functions; graph sketching; applications of the derivatives;		
antiderivative and integration; area under a curve and between curves		
ICMA 151 Statistics for Science I	4	
Prerequisites: Placement test or ICMA 101 Precalculus		
Statistical ideas and concepts; probability, conditional probability; distribution functions; expected		
value; estimators, good estimators; hypothesis testing		
ICPY 101 Physics I	4	
Prerequisites: None		

Measurement, units and dimensions; vectors, linear motion, Newton's laws of motion; kinetic and potential energy, rotational motion, linear and angular momentum; static equilibrium; fluid mechanics

ICPY 102	Physics II	4
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Prerequisites: ICPY 101 Physics I

Thermodynamics; electricity and magnetism; optics; nuclear and atomic physics

ICPY 105	Integrated Laboratory in Physics I	2

Prerequisites: ICPY 101 Physics I

Measurement and uncertainty; propagation of errors; data analysis for experiments in motions, resonance, refraction, and diffraction, heat transfer, simple electrical circuit

# Major Required Courses

ICCS 102 Coding for All			4
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Prerequisites: None

Introduction to Python programming; basic syntax and data types; control structures; functions; basic data structures: lists, tuples, sets, dictionaries; strings and string operations; file handling; error handling and debugging; working with data from APIs; using external packages

	IIILEI II ALIOITAI COITESE	
ICCS 111	Programming and Abstractions	4

International College

Prerequisites: ICCS 102 Coding for All or placement test

Elements of object-oriented programming and the use of an integrated development environment; principles of object-oriented design and problem solving; objects and classes; abstraction and abstract classes; encapsulation and information hiding; inheritance and polymorphism; composition and aggregation; iteration abstractions; abstract data types; recursion; unit testing

ICCS 121 System Skills and Low-level Programming 4	4
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Prerequisites: ICCS 102 Coding for All

Linux environment, including toolchain and scripting; version control e.g. Git; law and licenses; low-level programming in C: syntax, semantics, and primitives; data types: array, functions, null-terminated strings, and pointers; preprocessor and build tools; dynamic memory allocation; bit-level representations of data, including two's complement, alignment, and non-integral data

representation; machine-level programming, including x86 assembly, memory model, and basic machine architecture

ICCS 209 Data Structures 4

Prerequisites: ICCS 111 Programming and Abstractions

Corequisites: ICCS 206 Discrete Mathematics

Sequential and parallel cost models; asymptotic analysis and implications; abstract data types and data structures, including sequences, ordered and unordered dictionaries, binary search trees, balanced binary search trees, disjoint sets, and priority queues; fundamental algorithms, including searching, sorting, and basic graph algorithms; algorithms design techniques, including inductive reasoning, divide and conquer, dynamic programming, and randomness; limits of computation

ICCS 225 Database Foundations 4

Prerequisites: ICCS 121 System Skills and Low-level Programming; ICCS 209 Data Structures Database design and ER models; relational models; relational algebra; concepts and syntax of SQL; storage and indexing; transactions; joins; distributed databases and replication; NoSQL; performance optimization

ICCS 227 Principles of Computer Systems and Architecture 4

Prerequisites: ICCS 121 System Skills and Low-level Programming

Memory systems and memory management, including caches and virtual memory; exceptional control flows, including exceptions and processes, signals, and non-local jumps; networking and network programming, including socket API and principles behind the networking subsystem; processor architectures and implications to programmers: principles of pipelining and implementation, performance optimization; system-level I/O; concurrent programming, synchronization, and system-level parallel programming; secure coding practice

ICCS 261 Principles of Data Science 4

Prerequisites: ICCS 102 Coding for All or ICCS 111 Programming and Abstractions; ICMA 151 Statistics for Science I

Introduction to data science; data transformation and cleaning; visualization; exploratory data analysis; dimensionality reduction; principal component analysis; probability theory; sampling; hypothesis testing; modeling and estimation; basic machine learning methodology; regression; classification

ICCS 271 Interaction Design 4

Prerequisites: ICCS 209 Data Structures

Requirement analyses, including non-functional and functional requirements; data gathering; software design and prototyping; principles of good design; the software life cycle; software-development methodologies; quality assurance; cost modeling in software projects; roles and responsibilities in a software design team

ICCS 311 Functional and Parallel Programming 4

Prerequisites: ICCS 209 Data Structures

Functional evaluation and operational semantics; recursive functions, cost analysis, and proofs by induction; datatypes, pattern-matching, and structural recursion/induction; higher-order functions and currying; laziness and streams; cost semantics and parallel cost models such as work and span; theoretical efficiency and basic scheduling; parallelism, including parallel decomposition, tree parallelism, and vector parallelism; shared-memory parallel programming, including OpenMP, fork/join parallelism; standard parallel primitives and algorithms, including prefix scan, map, reduce, and sorting

ICCS 312 Algorithms and Tractability 4

Prerequisites: ICCS 209 Data Structures

Asymptotic analysis (big-O, big-Omega, big-Theta, little-o, little-omega); recurrences; algorithmic strategies, including divide and conquer, greedy, inductive design, and dynamic programming; probabilistic analysis and randomized algorithms; graphs and graph algorithms, including traversal, minimum-spanning tree, shortest paths, network flow; amortized analysis; reduction, tractability, and basic complexity classes; NP-completeness, classic NP-complete problems, and techniques for coping with hard problems

ICCS 370 Software System Construction 4

Prerequisites: ICCS 209 Data Structures

Modern development tools, including development environments, build tools, test automation, debugger; profiling and performance tuning; software verification; software testing; UML diagrams; design patterns; system architectures; entity design and conceptual modeling; source code refactoring; secure coding practice; roles and responsibilities in a software development team

ICMA 218 Multivariable Calculus 4

Prerequisites: ICMA 106 Calculus I

Functions of several variables, vectors and 3D analytic geometry, partial derivatives, directional derivatives, the chain rule, tangent planes and normal lines, optimization, Lagrange multipliers, multiple integrals in various coordinate systems, line integrals, Green's theorem, surface integrals

ICMA 240 Linear Algebra I 4

Prerequisites: Placement test or ICMA 101 Precalculus

Systems of linear equations, matrix algebra, determinants, vector spaces, linear transformations, eigenvalues and eigenvectors, diagonalization, applications

## Capstone Required Courses

# Option 1: Senior Project

ICCS 402 Senior Project in Computer Science I 4

Prerequisites: ICCS 309; ICCS 312 Algorithms and Tractability

Initiation of a research or development project in computer science or related fields under the supervision of an advisor; conducting preliminary research into the problem to identify a proper scope and research questions; the design and measurements of the research/development project proposed in the prerequisite course under supervision of the advisor; delivery of a written report and an oral presentation of the senior project proposal

ICCS 403 Senior Project in Computer Science II 4

Prerequisites: ICCS 402 Senior Project in Computer Science

Conducting an actual investigation/experiment that has been designed in the prerequisite course; analyzing gathered data to address the proposed research thesis; delivery of a written report and an oral presentation of the work in all three senior project courses as a whole

### Option 2: Cooperative and Work integrated Education

ICCS 431	Cooperative and Work integrated Education Seminar	2
Prerequisites: ICCS 370 Software System Construction; ICCS 225 Database Foundations		
Working as an actual employee under guidance of course coordinator and supervisors for at leas		
12 countinuous weeks		
ICCS 432	Cooperative and Work integrated Education I	3
Prerequisites: ICCS 431 Cooperative and Work integrated Education Seminar		

Working as an actual employee under guidance of course coordinator and supervisors for at least 12 countinuous weeks

ICCS 433 Cooperative and Work integrated Education II

3

Prerequisites: ICCS 432 Cooperative and Work integrated Education II

Working as an actual employee from previous trimester under guidance of course coordinator and supervisors for at least 4 countinuous weeks

# **Major Elective Courses**

ICCS 302 Human Computer Interaction and Visualization 4

Prerequisites: ICCS 271 Interaction Design

Design and evaluation of information systems and interfaces; user-centered design methods and skills; developing requirements through personas and scenarios; sketching, rapid prototyping and iterations; evaluation techniques: heuristics, cognitive walkthrough, user testing; usability and accessibility; visual design using principles of human perception and cognition; structured design and evaluation of visualizations; web-based interactive visualizations

ICCS 303 Competitive Programming 4

Prerequisites: ICCS 209 Data Structures

Introduction to competitive programming; differences from non-competitive programming; getting started with online contests; teamwork and contest strategies; problem solving paradigms including complete search, divide and conquer, greedy and dynamic programming; graph problems; data structure problems; string algorithms; computational geometry algorithms; search heuristics; ad-hoc problems

ICCS 315 Applied Algorithms 4

Prerequisites: ICCS 312 Algorithms and Tractability

Selection of topics from the following: hashing in various contexts, including Bloom filters, load balancing, document similarity, and data streaming; dimensionality reduction and nearest-neighbor searching; locality-sensitive algorithms; string algorithms; coding and error correction; and current research in the relevant areas

ICCS 320 Computer Networks 4

Prerequisites: ICCS 227 Principles of Computer Systems and Architecture

Network architecture, layering, and protocols; networked applications; socket programming; reliable data delivery, including flow control; routing and forwarding; local Area Networks; resource Allocation, including congestion control, CDN; mobility; network security

ICCS 322 Operating Systems Design and Implementation

4

Prerequisites: ICCS 227 Principles of Computer Systems and Architecture

Roles and importance of operating systems; overall structure of an operating systems; concept of process and process management; threads; synchronization and mechanisms; CPU scheduling; deadlock; virtual memory and memory management; protection and access control; security and threats

ICCS 323 IoT Electronics

4

Prerequisites: ICCS 121 System Skills and Low-level Programming; ICPY 102 Physics II

Electronic Components; circuit design and analysis; analog circuit; microcontroller programming; networking and data communication; IoT architecture and middleware; cloud-based computing

ICCS 324 Computer Architecture

4

Prerequisites: ICCS 227 Principles of Computer Systems and Architecture

Instruction Set Architecture (ISA); translation from a high-level language to hardware operations; processor design; pipelining; branch prediction, caching; memory subsystem; memory hierarchy; locality; virtual memory; memory management unit; programming paradigms

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ICCS 340 Web Application Development

4

Prerequisites: ICCS 209 Data Structures

Protocols for web-based application; HTML; DOM; CSS; JavaScript; authentication; authorization; single-page application development; multi-pages application development; client-side validation; server-side validation; MVC and related design patterns; web services; micro services; deployment; security issues

ICCS 362 Data Engineering

4

Prereguisites: ICCS 225 Database Foundations; ICCS 261 Principles of Data Science

Overview of data engineering; data modeling and database systems; data ingestion and extraction; data transformation and cleaning; data pipelines and workflow orchestration; data storage and retrieval technologies; streaming and real-time processing; scalability and performance optimization; security and compliance

ICCS 371 Scalable Systems 4

Prerequisites: ICCS 311 Functional and Parallel Programming; ICCS 370 Software System

Construction

Challenges in constructing scalable distributed systems; system models and architectural patterns; networking and operating system support; RPC and middleware; binding and naming; synchronization; naming and directory services; distributed transaction processing; data replication; scalable databases

**ICCS 372** 

Software Engineering

4

Prerequisites: ICCS 370 Software System Construction

Requirements analysis, including non-functional and functional requirements; data gathering; design and prototyping; principles of good design; the software life cycle; software-development methodologies; quality assurance; cost modeling in software projects

**ICCS 373** 

Cloud Computing

4

Prerequisites: ICCS 225 Database Foundations

Roles of cloud computing in modern software system development; benefits and risks of cloud computing; using cloud for compute, storage, and networking; cloud service models, and cloud deployment models

MA

**ICCS 404** 

Computer Graphics and Augmented Reality

4

Prerequisites: ICCS 209 Data Structures; ICMA 240 Linear Algebra |

Representation and manipulation of graphical data; two-dimensional and three-dimensional transformations; curves; surfaces; projection; illumination and shading models; raster and vector graphic I/O devices; augmented reality technologies; basic object and location tracking; representation of augmented reality content

**ICCS 412** 

Topics in Theory I

4

Prerequisites: ICCS 312 Algorithms and Tractability

Topic(s) from areas of theoretical computer science, including data structures, algorithms, and complexity theory, chosen according to current research and industrial trends

**ICCS 413** 

Topics in Theory II

4

Prerequisites: ICCS 312 Algorithms and Tractability

Topic(s) from areas of theoretical computer science, including data structures, algorithms, and complexity according industrial theory, chosen to current research and trends

ICCS 414 Topics in Theory III	4		
Prerequisites: ICCS 312 Algorithms and Tractability			
Topic(s) from areas of theoretical computer science, including data structures, algorithms, and			
complexity theory, chosen according to current research and indus	strial trends		
ICCS 418 Computer System Security	4		
Prerequisites: ICCS 227 Principles of Computer Systems and Architecture			
Security trends; information security and risk managements; access control, security architecture			
and design; physical and environmental security; telecommunications and network security;			
cryptography; business continuity and disaster recovery; legal/regulation com	npliance and		
investigations; application security; operation security; practical workshops of basic firewall			
appliance, DMZ and IPS			
ICCS 423 Topics in Systems I	4		
Prerequisites: ICCS 227 Principles of Computer Systems and Architecture			
Topic(s) from areas of systems in computer science chosen according to current research and			
industrial trends			
ICCS 424 Topics in Systems II	4		
Prerequisites: ICCS 227 Principles of Computer Systems and Architecture			
Topic(s) from areas of systems in computer science chosen according to current research and			
industrial trends			
International College			
ICCS 425 Topics in Systems III	4		
Prerequisites: ICCS 227 Principles of Computer Systems and Architecture			
Topic(s) from areas of systems in computer science chosen according to current research and			
industrial trends			
ICCS 445 E-Commerce Innovation and Technology Management	4		

Prerequisites: ICCS 271 Interaction Design; ICCS 370 Software System Construction

History of e-commerce, real and virtual networks, supply-side versus demand-side scale economies, business models Integration of technology and business within the fast-changing e-commerce landscape. Contemporary e-commerce platforms, emphasizing the technical aspects such as platform architecture, AI-based personalization, and security measures Key business strategies required for digital transformation Seamless omnichannel experiences Development of e-

commerce ventures Creation deployment and management cutting-edge e-commerce solutions that meet the needs of today's digital marketplace

ICCS 448 Mobile Application Programming

4

Prerequisites: ICCS 271 Interaction Design; ICCS 370 Software System Construction

Mobile application platforms; cross-platform framework; native application development; single-view and multi-view application development; database for mobile application, local files and media; connecting to web-services: JSON, XML; working with sensors and GPS; UI design for multiple screen sizes; publishing mobile application

ICCS 461 Machine Learning

4

Prerequisites: ICCS 205 Numerical Computation; ICCS 261 Principles of Data Science

Probability and maximum likelihood estimate; k-nearest neighbor methods; decision tree and basic information theory; regressions; ensemble learning algorithms including bagging, boosting and random forest; support vector machines; perceptron and neural networks; deep learning; unsupervised learning; semi-supervised learning; PAC learning and VC dimension

ICCS 462 Deep Learning

4

Prerequisites: ICCS 261 Principles of Data Science; ICMA 218 Multivariable Calculus

Fundamentals of neural networks; shallow and deep networks; gradient and loss functions; model training and evaluation; regularization; convolutional networks; image generation models; sequence models; transformer models; large language models

ICCS 463 Special Topics in Machine Learning I

4

Prerequisites: ICCS 205 Numerical Computation; ICCS 261 Principles of Data Science

Topic(s) from areas of Machine Learning chosen according to current research and industrial trends

ICCS 464 | Special Topics in Machine Learning II

4

Prerequisites: ICCS 205 Numerical Computation; ICCS 261 Principles of Data Science

Topic(s) from areas of Machine Learning chosen according to current research and industrial trends

ICCS 465 | Special Topics in Machine Learning III

4

Prerequisites: ICCS 205 Numerical Computation; ICCS 261 Principles of Data Science

Topic(s) from areas of Machine Learning chosen according to current research and industrial trends

ICCS 471 Topics in Software Technology I

4

Prerequisites: ICCS 271 Interaction Design

Topic(s) from a	areas of Software Technology chosen according to current research	and industrial	
ICCS 472	Topics in Software Technology II	4	
	CCS 271 Interaction Design areas of Software Technology chosen according to current research	and industrial	
ICCS 473	Topics in Software Technology III	4	
	CCS 271 Interaction Design areas of Software Technology chosen according to current research	and industrial	
ICCS 491	Topics in Computer Science I	4	
-	CCS 209 Data Structures reas of computer science chosen according to current research and in	dustrial trends	
ICCS 492	Topics in Computer Science II	4	
·	CCS 209 Data Structures reas of computer science chosen according to current research and in	dustrial trends	
ICMA 214	Ordinary Differential Equations	4	
First-order diffe	CMA 213 Calculus II  erential equations, linear differential equations of higher order, se ear differential equations, applications to physics, engineering, and oth		
ICMA 241	Linear Algebra II	4	
Prerequisites: ICMA 240 Linear Algebra I Inner product spaces, symmetric matrices and quadratic forms, numerical methods, singular value decomposition, applications			
ICMA 322	Advanced Calculus	4	
The real num	CMA 120 Mathematical Foundations and Proof Techniques  aber system, sequences of real numbers, limits and continuity  Riemann integration	of functions,	
ICMA 346	Optimization	4	
Prerequisites: 10	CMA 240 Linear Algebra I		

Linear programming; simplex method; duality theory; sensitivity analysis; integer programming; dynamic programming; applications in economics, engineering, and data science

ICMA 350 Probability 4

Prerequisites: ICMA 213 Calculus II

Sample spaces; basic axioms of probability; conditional probability and independence, random variables, expectation and moment-generating functions, discrete and continuous distributions, central limit theorem

ICMA 424 Abstract Algebra 4

Prerequisites: ICMA 120 Mathematical Foundations and Proof Techniques

Groups; subgroups; cyclic groups; permutation groups; cosets; normal subgroups; quotient groups; group homomorphisms; rings; integral domains; ideals; quotient rings; ring homomorphisms; polynomial rings; fields

