

## 2020 Pre-College Summer Session Online Course List

This course list was updated on 2020-06-18. See the last page of this document for a changelog.

Online courses meet daily unless otherwise noted. Full online courses at Carnegie Mellon carry 9 to 12 units, corresponding to 3 to 4 credits at other U.S. colleges and universities.

Pre-College Summer Session students are allowed to enroll in **23 or fewer units**, because the courses in this six-week summer term cover material from the longer fall and spring semesters and we have found students who enroll in excessive units cannot experience everything Pre-College Summer Session has to offer. Students who do enroll in 23 units may be expected to study challenging Carnegie Mellon academic material for at least 57 hours every week. For more information, contact the Pre-College Summer Session Director, Dr. William Alba ([alba@cmu.edu](mailto:alba@cmu.edu), 412-268-7333).

Newly listed courses for the Pre-College Summer Session in 2020 include:

**53-110 Introduction to Game Prototyping**

**76-101 Interpretation and Argument: The Culture of Video Games**

**79-287 The Mummy's Curse: Uses and Abuses of Archaeology**

**82-103 Elementary French I Online**

**82-102 Elementary French II**

**82-278 Japanese Film and Literature: The Art of Storytelling**

**82-286 Understanding Cultural Complexities: The Changing Face of Japan**

### Enrollment information

Visit the enrollment portal for up-to-date course availability and class times. Additional online courses may be available during the university's concurrent Summer Session 2 for appropriately prepared students. For other courses, both the faculty member teaching the course and the Pre-College Summer Session Director must authorize your choice. For a complete listing of available Summer Session 2 courses, contact Dr. William Alba.

Some of the online courses in the following list are especially designated for Pre-College Summer Session, while some enroll both Pre-College Summer Session students and undergraduate students. In either case, all Summer Session courses offer the same quality of instruction and expectation of work as during the fall or spring at Carnegie Mellon.

After reviewing these course descriptions and, if needed, consulting by phone or email with the Pre-College Summer Session Director about course choices, select your courses using the Pre-College Summer Session Course Request Form in the Pre-College Enrollment Portal. Students will have access to the form through this portal after they are admitted to the Pre-College Summer Session program.

Courses fill in the order that deposits and forms are received by the university, including when the course request form is completed. For Computer Science courses that require the completion of an assessment test for placement, the date of completion of that assessment also factors into the order in which students are enrolled in those courses.

Pre-College Summer Session students do not enroll themselves in courses. They are enrolled based on their course availability and their course selections on the Pre-College Summer Session Course Request forms. Enrollment is subject to completion of any required assessments and meeting required placement scores as well as course availability. To view your course schedule once you are enrolled in classes, visit Student Information Online on the HUB's website ([www.cmu.edu/hub/sio](http://www.cmu.edu/hub/sio)) using your Carnegie Mellon University Andrew ID and password. Please allow time for the receipt and processing of your payment and enrollment forms.

Students may request schedule changes until the end of the second day of classes by contacting the Pre-College Summer Session Director. Students and their families are responsible for communicating with each other any changes in their academic plans.

## All courses are only offered online

Units	Course #	Course Title	Online Meeting Times
9	03-121E	Modern Biology	MTWRF 9:00a-10:20a
9	03-132E	Basic Science to Modern Medicine	MTWRF 3:00p-4:20p
9	06-052E	Fundamentals of Chemical Engineering Practice	MTWRF 9:00a-10:20a AND MW 1:00p-2:50p
10	09-105E	Introduction to Modern Chemistry I	MTWRF 10:30a-11:50a AND T 2:00p-2:50p *
10	15-110E	Principles of Computing	MTWRF 9:00a-10:20a AND MTWRF 4:30p-5:20p
12	15-112E **	Fundamentals of Programming and Computer Science	MTWRF 9:00a-10:20a AND MTWRF 5:30p-6:20
12	18-100E	Introduction to Electrical and Computer Engineering	MTWRF 10:30a-11:50a AND MWF 3:00p-4:20p AND TR 1:30p-4:20p
9	27-052E	Introduction to Nanoscience and Technology	MWF 1:00p-2:50p
9	33-124E	Introduction to Astronomy	MTWRF 1:30p-2:50p
9	36-200E	Reasoning with Data	MTWRF 12:00p-1:20p
9	36-202E	Methods for Statistics & Data Science	MTWRF 10:30a-11:50a
9	53-110E	Introduction to Game Prototyping	MTWRF 12:00p-1:20p
9	57-341E	Sound Recording Workshop	MWF 1:30p-2:50p AND MW 6:30p-7:50p
9	73-103E	Principles of Macroeconomics	MTWRF 10:30a-11:50a
9	76-101E	Interpretation and Argument: The Culture of Video Games	MWF 12:00p-2:20p
9	79-287E	The Mummy's Curse: Uses and Abuses of Archaeology	MTWRF 1:30p-2:50p
9	79-318E	Sustainable Social Change: History and Practice	MTWRF 12:00p-1:20p
9	80-100E	Introduction to Philosophy	MTWRF 12:00p-1:20p
9	80-135E	Introduction to Political Philosophy	MTWRF 1:30p-2:50p
9	80-180E	Nature of Language	MTWRF 10:30a-11:50a
12	82-103E	Elementary French I Online	TBD
12	82-102E	Elementary French II	MTWRF 10:30a-11:20a
12	82-171E	Elementary Japanese I	MTWRF 9:00a-10:20a
9	82-278E	Japanese Film and Literature: The Art of Storytelling	MTWRF 1:30p-2:50p
9	82-279E	Anime: Visual Interplay between Japan and the World	MTWRF 12:00p-1:20p
9	82-286E	Understanding Cultural Complexities: The Changing Face of Japan	MTWRF 9:00a-10:20a
9	85-102E	Introduction to Psychology	MTWRF 12:00p-1:50p
9	85-241E	Social Psychology	MTWRF 1:30p-2:50p

All courses are only offered online. Students must be available every week during the designated days/times, which are based on Eastern Daylight Time (EDT).

If you sign up for a course with multiple times (indicated by "AND"), you must be available during all of those times.

\* The only exception to this policy is the Tuesday afternoon time slot for 09-105.

\*\* Placement into 15-112 requires appropriate scoring on the CS Placement test. Details are in course description.

## All courses are only offered online

### **03-121 Modern Biology (9 units)**

This is an introductory course that provides the basis for further studies in biochemistry, cell biology, genetics and molecular biology. This course emphasizes the chemical principles underlying biological processes and cell structures as well as the analysis of genetics and heredity from a molecular perspective. This is the introductory biology course for all science and non-science majors.

### **03-132 Basic Science to Modern Medicine (9 units)**

The goal of this course is to give students an understanding of the biology that impacts their everyday lives. Disease can be a tragic part of human life, a fact that is even more apparent in during a global pandemic. To understand how specific diseases like COVID-19 or cancer affect the human body, and how modern medicine can tackle them, this course includes a fundamental study of the basic molecular biology, genetics, and cell biology that underlies disease. This is a topics-based course, with topics chosen to cover aspects of biology and health that students are likely to encounter in their daily lives. The topics for summer 2020 will include COVID-19, genome editing, and cancer. We will explore these topics from both a basic science and a modern medicine perspective. Student's will gain the expertise to critically evaluate media reports about biology and health, and to ask the questions that will help them to make educated decisions in their lives. Key topics: The course will cover at least COVID-19, cancer, and genome editing, in addition to the essential aspects of molecular biology, cell biology, and genetics needed to understand those topics.

### **06-052 Fundamentals of Chemical Engineering Practice (9 units)**

This course provides advanced high school students with an introduction to Chemical Engineering practice. The course goals are: (1) to provide students with a broad knowledge of the engineering sciences Chemical Engineers utilize; (2) to increase facility with computational tools used by engineers; and (3) to apply chemical engineering sciences to problems in chemical process and product design. The course will cover a selection of topics, including mass and energy balances, Thermodynamics, Fluid Mechanics, Heat and Mass Transfer, and Unit Operations. Laboratory time will reinforce learning inductively and will feature open-ended problems.

### **09-105 Introduction to Modern Chemistry I (10 units)**

This course begins with a very brief survey of some fundamental principles of chemistry and a presentation of chemically interesting applications and sophisticated problems. These will form the basis for introducing the relationships between the structure of molecules and their chemical properties and behavior. The subject matter will include principles of atomic structure, chemical bonding, intermolecular interactions and molecular structures of organic and inorganic compounds including some transition metal complexes. Relevant examples will be drawn from such areas as environmental, materials, and biological chemistry.

### **15-110 Principles of Computing (10 units)**

A course in fundamental computing principles for students with minimal or no computing background. Programming constructs: sequencing, selection, iteration, and recursion. Data organization: arrays and lists. Use of abstraction in computing: data representation, computer organization, computer networks, functional decomposition, and application programming interfaces. Use of computational principles in problem-solving: divide and conquer, randomness, and concurrency. Classification of computational problems based on complexity, non-computable functions, and using heuristics to find reasonable solutions to complex problems. Social, ethical and legal issues associated with the development of new computational artifacts will also be discussed. 80-minute daily lecture and 50-minute daily recitation.

### **15-112 Fundamentals of Programming and Computer Science (12 units)**

A technical introduction to the fundamentals of programming with an emphasis on producing clear, robust, and reasonably efficient code using top-down design, informal analysis, and effective testing and debugging. Starting from first principles, we will cover a large subset of the Python programming language, including its standard libraries and programming paradigms. We will also target numerous deployment scenarios, including standalone programs, shell scripts, and web-based applications. This course assumes no prior programming experience. Even so, it is a fast-paced and rigorous preparation for 15-122. Students seeking a more gentle introduction to computer science should consider first taking 15-110. **NOTE:** students must achieve a C or better in order to use this course to satisfy the pre-requisite for any subsequent Computer Science course.

**Note on 15-110 vs. 15-112:** If you are certain at this time that you want to study Electrical and Computer Engineering (ECE) or Computer Science (CS) as a major or minor during college, or if you want to devote an immense amount of time during the summer doing programming, you should consider 15-112 if you have prior programming experience. On the other hand, if you are exploring the possibility of majoring in CS or ECE, intend to apply CS primarily towards other areas, or want to get a broad sense of computer science and how computer scientists approach problems, 15-110 is much more appropriate .

**Computer Science Placement Exam:** To ensure students are placed in the correct CS courses, Pre-College Summer Session students who seek to enroll in 15-112 must complete a CS placement exam administered by CMU. This is due to the fast-paced nature of summer courses. Information about this exam will be sent to students who have listed 15-112 on their course request forms. Students will be enrolled in these courses only after their placement exams are scored.

### **18-100 Introduction to Electrical and Computer Engineering (12 units)**

The goals of this freshman engineering course are: To introduce basic concepts in electrical and computer engineering in an integrated manner; To motivate basic concepts in the context of real applications; To illustrate a logical way of thinking about problems and their solutions, and; To convey the excitement of the profession. These goals are attained through analysis, construction and testing of an electromechanical system (e.g., a robot) that incorporates concepts from a broad range of areas within Electrical and Computer Engineering. Some of the specific topics that will be covered include system decomposition, ideal and real sources, Kirchhoff's Current and Voltage Laws, Ohm's Law, piecewise linear modeling of nonlinear circuit elements, Ideal Op-Amp characteristics, combinational logic circuits, Karnaugh Maps, Flip-Flops, sequential logic circuits, and finite state machines. Prerequisite: high school technical course such as chemistry or physics. **NOTE:** we will assume students have knowledge of complex numbers in rectangular and polar forms, can convert between the two, and can add, subtract, multiply and divide complex numbers. Junior or senior standing in high school required, senior is preferred. This is the same rigorous course required of entering ECE majors.

### **27-052 Introduction to NanoScience and Technology (9 units)**

The course is primarily intended to provide an introduction to nanoscience and technology to a wide audience of students at the advanced high school to incoming freshmen level. The course goals are twofold: (1) to provide students with a holistic view of the objectives, opportunities and challenges of the emerging field of nanotechnology and 2) to sensitize students at an early stage of their career to the relevance of the connections among the traditional disciplines as a vital element to the progress in interdisciplinary areas such as nanotechnology. The course will cover: Introduction and fundamental science; Preparation of nanostructures; Characterization of nanostructures; Application examples, Social and ethical aspects of nanotechnology.

### **33-124 Introduction to Astronomy (9 units)**

Astronomy continues to enjoy a golden age of exploration and discovery. This course presents a broad view of astronomy, straightforwardly descriptive and without any complex mathematics. The goal of the course is to encourage non-technical students to become scientifically literate and to appreciate new developments in the world of science, especially in the rapidly developing field of astronomy. Subjects covered include the solar system, stars, galaxies and the universe as a whole. The student should develop an appreciation of the ever-changing universe and our place within it. Computer laboratory exercises will be used to gain practical experience in astronomical techniques. In addition, small telescopes will be used to study the sky. This course is specifically geared toward non-science/engineering majors.

### **36-200 Reasoning with Data (9 units)**

This course will serve as an introduction to learning how to "reason with data." While still an introductory-level course in the Statistics Department, the focus will be more on thinking about the relationship between the application and the data set and extracting useful statistical information rather than taking primarily a formula-driven approach. There will be an emphasis on thinking through an empirical research problem from beginning to end. Types of data will include continuous and categorical variables, images, text, and networks. Applications will largely be drawn from interdisciplinary case studies spanning the humanities, social sciences, and related fields. Methodological topics will include basic exploratory data analysis, elementary probability, hypothesis tests, and empirical research methods. There is no calculus or programming requirement. There will be weekly computer labs for additional hands-on practice.

### **36-202 Methods for Statistics and Data Science (9 units)**

This course builds on the principles and methods of statistical reasoning developed in 36-200 (or its equivalents). The course covers simple and multiple regression, analysis of variance methods and logistic regression. Other topics may include non-parametric methods and probability models, as time permits. The objectives of this course are to develop the skills of applying the basic principles and methods that underlie statistical practice and empirical research. Learning the Data Analysis Pipeline is strongly emphasized through structured coding and data analysis projects. In addition to three lectures a week, students attend a computer lab twice a week for "hands-on" practice of the material covered in lecture; students will learn the basics of R Markdown and related analytics tools. Prerequisite: Reasoning with Data (36-200), or equivalent knowledge (e.g., AP Statistics with score 4 or higher, Cambridge A Level "Further Mathematics C" with grade of B or higher, prior college course with passing grade)

### **53-110 Introduction to Game Prototyping (9 units)**

This course teaches the fundamentals of designing, testing, and refining a game through lectures, workshops, individual assignments and team projects. We will examine the structure of games, strategies for generating game concepts, and methods to rapidly prototype and test designs. Students will individually modify existing games as design challenges and will work in small teams to create and refine prototypes of new games. Topics covered will include: game mechanics and rule sets, level design, balancing game-play, the role of statistics and probability, player psychology and motivations, and prototyping and play-testing methods.

### **57-341 Sound Recording Workshop (9 units)**

Sound Recording Workshop centers around concepts used in the School of Music's Vlahakis Recording Studio: how the studio works, and how to record and edit various types of music and audio using the industry standard Pro Tools software. The method of instruction will be modified to accommodate remote instruction, and is still centered around "learning by doing," with the goal being to achieve professional-sounding results. The lecture portion will cover the basics of sound, wave propagation, human hearing, psychoacoustics, transducers (microphones and speakers), mixing consoles, signal processors, digital and analog recording systems and signal flow. The lab portion will include demonstrations of studio equipment and assigned recording and editing projects utilizing the Pro Tools DAW. There are no specific prerequisites for the course, although reading music and/or playing an instrument is helpful.

### **73-103 Principles of Macroeconomics (9 units)**

A one-semester course that teaches the fundamentals of macroeconomics. Students will learn how macroeconomic analysis can explain national economic activity and how government intervention might stabilize an economy. Topics include: defining and measuring national wealth, economic growth, credit markets, unemployment, interest rates, inflation, and the monetary system. Additional emphasis will be paid to: long-term economic development, political economy, financial crises and topics that are central to contemporary macroeconomic debates such as the impact of technological change, migration, and trade on the macroeconomy. Students will access macroeconomic databases, and then use basic statistics to describe and isolate empirical patterns in macro-data. Prerequisite: A score of 5 on the AP Microeconomics exam or similar certified knowledge.

### **76-101 Interpretation and Argument (9 units)**

76-101 introduces first-year students to an advanced, inductive process for writing an argument from sources. Because the course is based upon empirical research about professional academic writers, students will learn expert practices for authoring their own arguments that contribute to an existing community of authors. Because reading and writing are inseparable practices for academic writing, students will read a variety of texts so that they can explore and critically evaluate a single issue from multiple perspectives and from different disciplinary genres. Students will learn methods for summarizing, synthesizing, and analyzing arguments within that issue so that they may contribute an argument of their own. The course is also geared toward helping students understand the requirements of advanced college-level writing. Our students are typically very accomplished readers and writers, and we are eager to push their accomplishments toward greater excellence. For this purpose, students will build upon their composing knowledge by reflecting and thinking strategically as they plan, write, and revise their own texts. Ultimately, they will develop critical reading, rhetorical and linguistic practices for analyzing and producing texts within the context of an academic community. Each section of 76-101 is structured by the same objectives and core assignments. There is a core vocabulary and set of heuristics that all sections teach.

#### *The Interpretation and Argument topic for 2020 Summer Session is The Culture of Video Games:*

This course focuses on arguments related to the social impact of video games in contemporary culture. Video games have been an influential force of entertainment for decades, but in the past decade have reached a new peak of mainstream appeal. Emphasizing issues around identity politics, the course discusses issues of representation and identification in video games from the past and present, while also looking at how video games have evolved and developed their own unique and complex culture. Students are asked to write papers analyzing an argument about video games, writing a proposal describing a potential topic for a final paper and a plan of research, and then finally contributing their own argument to a discussion about video games and their social impact.

### **79-287 The Mummy's Curse: Uses and Abuses of Archaeology (9 units)**

Popular representations of ancient civilizations often present fantastical versions of the past. This course will examine popular topics such as cursed mummies, ancient aliens, lost cities, and other alternative archaeologies as well as historical events and contexts to understand how they intersect with academic understandings of archaeology and human history. Students will explore how archaeologists and others answer questions about the past, and how we can evaluate competing interpretations. This course will delve into how different disciplines, and different people, rely on diverse lines of evidence to contextualize the past.

### **79-318 Sustainable Social Change: History and Practice (9 units)**

If you wanted to change the world, who would you ask for guidance? Mahatma Gandhi, Martin Luther King, Mother Theresa, Rachel Carson, or Nelson Mandela? In this interdisciplinary course, we will examine the history of efforts to create sustainable social change. Through a series of targeted case studies, we will examine the successes and failures of notable leaders, past and present, who strove to address social problems nonviolently and to create lasting improvements in fields such as education, healthcare, and human rights. In keeping with the example of the people we will be studying, we will bring our questions and our findings out of the classroom through a variety of creative, student-driven experiments in sustainable social change. 80-minute sessions 3 days/week. *Students enrolled in this class are eligible for an extended program beyond the 6-week Pre-College Summer Session connecting students from the course with ongoing student projects, mentoring, advising, and continued association with Carnegie Mellon faculty and staff.*

**80-100 Introduction to Philosophy (9 units)**

In this introductory course we will explore three major areas of Philosophy: Ethics, Metaphysics, and Epistemology. Accordingly the course is divided into three sections. In each section we will read primary sources and discuss some of the main philosophic problems associated with that area. These will include: moral problems (Ethics), problems rising from the debates about free-will, personal identity or intelligence (Metaphysics), and inquiries about the scope and limits of human knowledge (Epistemology). We will then introduce some theories designed to solve such problems, and try to understand the strengths and weaknesses of these theories. We will apply different techniques and theories to issues that we might encounter in the real world. We will use class discussions, homework, and papers to learn skills for evaluating arguments. These skills include: how to present a philosophic argument, what are the assumptions that justify it, what are its weaknesses and its strengths, whether such weaknesses can be resolved and, if they cannot be resolved, why.

**80-135 Introduction to Political Philosophy (9 units)**

At the heart of political philosophy lie fundamental questions such as: What constitutes a just society? How, and under what circumstances do individuals incur political obligations to a particular state? This course provides a systematic investigation of the way such questions are answered by dominant schools of liberal political theory, such as the social contract tradition, utilitarianism and libertarianism. Later we will introduce critiques from socialist, and feminist theorists. Readings are drawn from classic works by authors such as Plato, Hobbes and Locke, and from the works of more contemporary theorists like Rawls, and Nozick.

**80-180 Nature of Language (9 units)**

Language is used to talk about the world or to describe it, but how do we go about describing language itself? Linguistics is the name given to the science of language, whose task it is to give such a description. The discipline of linguistics has developed novel tools for describing and analyzing language over the last two hundred years and in this course we learn what these tools are and practice applying them. Sub-areas of linguistics which we study include phonetics (the study of speech sounds), phonology (the study of sound systems), morphology (the study of parts of words), and syntax (the study of combinations of words). Beyond this, we look at changes in language over time, and we consider the puzzle of linguistic meaning. The methods of linguistics are useful in the study of particular languages and in the study of language generally, so this course is useful for students of foreign languages as well as those interested in going on to study language acquisition, psycholinguistics, sociolinguistics, philosophy of language, and computer modeling of language.

*Except for 82-102, the following language courses have no prerequisites. Additional Modern Language courses may be available at the Elementary, Intermediate, and Advanced levels in French, Spanish, Japanese, Arabic, Chinese, and Italian. If interested, contact Dr. William Alba (alba@cmu.edu).*

**82-103 Elementary French I Online (12 units)**

This course is designed for students with no prior experience with French and who need a more flexible approach to language learning than that offered in a standard classroom course. Beginning language learners will develop communicative competence in the four basic skills of listening, speaking, reading and writing. Basic vocabulary and sentence structures for use in essential daily-life situations, as well as cultural information, are taught through the course materials and assignments. Materials are web-based, with extensive use of Internet technologies for listening, reading, and communication. (During the fall and spring semesters, this course is offered in a hybrid mode requiring one 80-minute class per week in addition to weekly 20-minute individual meetings with the instructor or a peer speaking assistant. There is a materials fee for taking this course which is paid by credit card on first log-in to the course website. A student with prior experience in French must take the placement exam.)

**82-102 Elementary French II (12 units)**

This course is designed for students who have taken first-semester French at Carnegie Mellon or learned its equivalent as determined by placement. Using a proficiency-oriented approach, students will expand contextually appropriate interpersonal communication skills in both written and spoken French, continue to develop reading and listening skills through the use of various media, review previously learned and practice new grammar and vocabulary, and gain a further understanding of French and francophone cultures through class activities. Regular homework, quizzes, tests, presentations, and class participation are mandatory (four in-class hours per week). The elementary level is also designed to help students learn to reflect and draw upon strategies used by good language learners in their second language study. A student with prior experience in French must take the placement exam.

**82-171 Elementary Japanese I (12 units)**

This course is the first part of a two-semester course sequence (82-171, 82-172) for students with no prior experience in Japanese. It emphasizes the development of communicative language proficiency through oral practice, aural comprehension, reading, writing, and the study of cultural aspects of Japanese society. Regular homework, quizzes, tests, presentations, and class participation are mandatory (four in-class hours per week). The elementary level is also designed to help students learn to reflect and draw upon strategies used by good language learners in their second language study. A student with prior experience in Japanese must take the placement exam.

**82-278 Japanese Film and Literature: The Art of Storytelling (9 units)**

This course explores how the art of storytelling is in tandem with the vicissitudes of the human condition as illustrated in Japan's variety of fictions, non-fictions, and films in the twentieth and twenty-first centuries. Analyses of each storytelling not only reveal the cultural dynamics behind Japanese modernity, but also invite students to find new insights into Japanese culture and their ways of perceiving our globalized world. What kind of cultural exchanges took place between modern Japan and the West? How are Japan's traditional values transformed in the face of modern technicalization and industrialization, compared to the modernization of other countries? And, in turn, what kind of impact has modern Japanese culture had on today's world? Tackling these questions among others, the course also extends to such issues as the legacy of traditional Japanese culture, the modern Emperor system, World War II experiences, emerging voices of minorities, and popular culture (e.g., anime and subculture). This course is taught in English.

**82-279 Anime - Visual Interplay between Japan and the World (9 units)**

In contemporary Japanese culture, anime plays a vital role, unfolding a wide range of stories with its distinct modes of visual representation and complementing to other forms of culture (e.g., literature, film, and art). This course explores Japanese anime's appeal to the international viewers today, centering around cultural analyses of anime such as the Studio Ghibli production and Cyberpunk. Equally important are to locate the origin of Japanese animation, which is also investigated through the prewar and postwar works of animation in conjunction with related forms such as manga, or comic strips (e.g., Osamu Tezuka's works that was initially inspired by Disney) and to discuss the potential of anime as an art form.

**82-286 Understanding Cultural Complexities: The Changing Face of Japan (9 units)**

Students will explore Japan's cultural complexities by examining Japanese experiences with migration (immigration and emigration) issues. In the past three decades, due to an acceleration of globalization and a relaxed immigration policy, Japan has become more accepting of foreigners from around the globe including the descendants of those Japanese who emigrated to South America more than a century ago. The number of foreign residents in Japan has more than doubled in the decades with Chinese and Koreans now accounting for only about half of them. In response, Japan has been promoting Tabunka Kyosei Shakai (Multicultural Coexistence Society), which seriously questions the time-honored belief in the 'essentialized' Japan emphasizing its ethnic and cultural homogeneity. Key topics include globalization, recent immigration policy changes, various immigrant groups, multiculturalism, Japanese colonialism, and Japanese diaspora. The course uses films, video clips, newspaper articles, and other reading materials to discover a multicultural/transcultural Japan. Students will have opportunities to compare Japan and their own country and to reflect on the cultural diversity of their own society. The course is taught in English with no knowledge of Japanese assumed. Assignments include film viewings, critical readings, reaction papers, class discussions, and a final research project. A creative option (film/video or screenplay) is also available for the final project. This course will be taught in English; there are no prerequisites.

**85-102 Introduction to Psychology (9 units)**

This course examines major areas of scientific psychology in some depth, the attempt being to develop basic models of our behavior and thought that explain wide areas of our functioning. The primary focus is on the areas of neural and motivational control of behavior, memory and thought, social interaction, and psychological development. Specific topics within these areas include brain function, motivational control systems, learning, cognitive and perceptual information processing, problem solving, obedience and conformity, social interaction, emotion, attitude consistency and change, how our social, cognitive and language functions develop, the importance of childhood to adult functioning, and psychopathology. In addition to the lecture, the course includes a weekly recitation section meeting and weekly short WEB-based laboratory experiences in which students get to perform actual experiments, interpret real data, and experience many psychological phenomena.

**85-241 Social Psychology (9 units)**

The focus of this course will be on how peoples' behavior, feelings, and thoughts are influenced or determined by their social environment. The course will begin with lectures and readings on how social psychologists go about studying social behavior. Next, various topics on which social psychologists have done research will be covered. These topics will include: person perception, prejudice and discrimination, the nature of attitudes and how attitudes are formed and changed, interpersonal attraction, conformity, compliance, altruism, aggression, group behavior, and applications of psychology to problems in health care, law, politics, and the environment. Through readings and lectures on these topics, students will also be exposed to social psychological theories.

If you have questions about courses or scheduling, please contact:

William Alba, Ph.D.  
Pre-College Summer Session Director, Carnegie Mellon University  
Email: [alba@cmu.edu](mailto:alba@cmu.edu)

**The university reserves the right to add, change, or cancel class times and/or course offerings** without notice, especially given the current context of the unprecedented COVID-19 pandemic.

**Other courses may become available.** Courses currently being considered include both semesters of introductory physics. Please check the Pre-College Summer Session website regularly for updates to this course listing.

### **Changelog**

- 2020-02-21 First public version.
- 2020-04-20 First public version with remote instruction.
- 2020-04-22 Corrected title for macroeconomics course. Reconciled table and descriptions for course offerings in psychology and in decision science. Simplified time format to increase readability.
- 2020-04-24 Clarified 36-200 (or equivalent prior credit) is prerequisite for 36-202.
- 2020-04-26 Added Introduction to Modern Chemistry (09-105). Revised list of courses new in 2020.
- 2020-05-18 Added Life and Environmental Science (03-140), The Mummy's Curse: Uses and Abuses of Archaeology (79-287), and Introduction to Philosophy (80-100). Revised list of courses new in 2020 accordingly. Removed Concepts of Mathematics (21-127). Revised course time for Introduction to Modern Chemistry (09-106) and clarified course scheduling statement. Modified course description for Sound Recording Workshop (57-341) to reflect online instruction. Deleted course format description at end of each entry, in order to accommodate flexibility in teaching modes.
- 2020-05-26 Updated descriptions for Basic Science to Modern Medicine (03-132), Ecology and Environmental Science (03-140), and Sound Recording Workshop (57-341). Updated course title for 03-140.
- 2020-06-15 Ecology and Environmental Science (03-140) canceled.
- 2020-06-18 Elementary French (82-101) replaced with Elementary French I Online (82-103).  
Introduction to Japanese Language and Culture (82-273) canceled --  
Japanese Film and Literature: The Art of Storytelling (82-287) is being offered instead.