

## 2022 Pre-College Summer Session Course List

This course list was updated on 2022-05-27. *See the last page of this document for changelog.*

Courses meet daily unless otherwise noted. Full 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 or revised courses for the Pre-College Summer Session in 2022 include:

76-101 Interpretation and Argument (revised)	82-273 Intro to Japanese Language and Culture (revised)
76-221 Books You Should Have Read by Now	82-278 Japanese Film and Literature (revised)
80-130 Introduction to Ethics	82-279 Anime: Visual Interplay between Japan... (revised)
82-171 Elementary Japanese I	82-286 Cultural Complexities: Multicultural Japan (revised)
82-271 Intermediate Japanese I	82-371 Advanced Japanese I
82-272 Intermediate Japanese II	82-372 Advanced Japanese II

### Enrollment information

Visit the enrollment portal for up-to-date course availability and class times. 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 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.

Units	Course #	Course Title ***	Meeting Times
9	03-121E	Modern Biology	MTWRF 9:00a-10:20a
9	03-132E	Basic Science to Modern Medicine	MTWRF 2:00p-3:20p
9	06-052E	Fundamentals of Chemical Engineering Practice	MTWRF 9:00a-10:20a and MW 2:00p-3:50p
10	09-105E	Introduction to Modern Chemistry	MTWRF 10:40a-12:00n and T 2:00p-2:50p
10	15-110E	Principles of Computing ****	MTWRF 9:00a-10:20a and MTWRF 3:40p-4:30p
12	15-112E*	Fundamentals of Programming and Computer Science ****	MTWRF 10:40a-12:00n and MTWRF 6:00p-6:50p
10	21-127E**	Concepts of Mathematics ****	MTWRF 9:00a-10:20a
9	27-052E	Introduction to Nanoscience and Technology	MWF 2:00p-3:20p
9	33-115E	Physics for Future Presidents	MTWRF 2:00p-3:20p
9	33-124E	Introduction to Astronomy	MTWRF 2:00p-3:20p
12	33-141E	Physics I for Engineering Students ****	MTWRF 12:20p-2:40p
9	36-200E	Reasoning with Data ****	MTWRF 12:20p-1:40p
9	36-202E	Methods for Statistics & Data Science	MTWRF 10:40a-12:00n
9	57-341E	Sound Recording Workshop	MWF 2:00p-3:30p and MW 6:30p-7:50p
9	73-102E	Principles of Microeconomics	MTWRF 2:00p-3:20p
9	73-103E	Principles of Macroeconomics	MTWRF 1:25p-2:45p
9	76-101E	Interpretation and Argument	MTWRF 9:00a-10:20a
9	76-101F	Interpretation and Argument	MTWRF 12:20p-1:40p
9	76-221E	Books You Should Have Read by Now	MTWRF 10:40a-12:00n
9	80-100E	Introduction to Philosophy	MTWRF 2:00p-3:20p
9	80-130E	Introduction to Ethics ****	MTWRF 12:20p-1:40p
9	82-137E	Chinese Calligraphy: Culture and Skills	MTWRF 10:40a-12:00n
12	82-171E	Elementary Japanese I	MTWRF 12:20p-1:40p
12	82-172E	Elementary Japanese II	MTWRF 2:00p-3:20p
9	82-173E	Introduction to Japanese I	MTWRF 3:40p-5:00p
9	82-174E	Introduction to Japanese II	MTWRF 6:30p-7:50p
12	82-271E	Intermediate Japanese I	MTWRF 9:00a-10:20a
12	82-272E	Intermediate Japanese II	MTWRF 10:40a-12:00n
9	82-273E	Introduction to Japanese Language and Culture	MTWRF 12:20p-1:40p
9	82-278E	Japanese Film and Literature	MTWRF 9:00a-10:20a
9	82-279E	Anime: Visual Interplay between Japan and the World	MTWRF 10:40a-12:00n
9	82-286E	Cultural Complexities: Multicultural Japan	MTWRF 2:00p-3:20p
9	82-371E	Advanced Japanese I	MTWRF 6:30p-7:50p
9	82-372E	Advanced Japanese II	MTWRF 3:40p-5:00p
9	85-102E	Introduction to Psychology	MTWRF 12:20p-1:40p
9	85-241E	Social Psychology	MTWRF 2:00p-3:20p

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

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

\*\* 21-127 has new prerequisites starting in 2022, which are typically satisfied by demonstrable college-level knowledge in calculus or computer science. Details are in the course description.

\*\*\* Please see each individual course description for any additional prerequisites.

\*\*\*\* New enrollment for 15-110 is currently closed.

\*\*\*\* New enrollment for 15,112, 21-127, 33-141, 36,200, and 80-130 is closed. You may be added to a waitlist. Because being on a waitlist does not guarantee that you will be able to enroll in the course, you should also indicate a second available course you are willing to take.

### **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)**

This course will focus on the genetics, cell biology, and developmental biology behind human biology and human disease, as well as the growing opportunities for novel therapeutic options that basic science delivers. This is a topics based course, with topics chosen to cover aspects of human biology and health that students are likely to encounter in their daily lives such as cancer, stem cells, genome sequencing, and the human microbiota. Students will explore these topics from both a basic science and a human health perspective.

### **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) \*\*\*\*** New enrollment is closed – see page 2 for information.

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.

### **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.

**21-127 Concepts of Mathematics (10 units) \*\*\*\*** New enrollment is closed – see page 2 for information. This course introduces the basic concepts, ideas and tools involved in doing mathematics. As such, its main focus is on presenting informal logic, and the methods of mathematical proof. These subjects are closely related to the application of mathematics in many areas, particularly computer science. Topics discussed include a basic introduction to elementary number theory, induction, the algebra of sets, relations, equivalence relations, congruences, partitions, and functions, including injections, surjections, and bijections. A basic introduction to the real numbers, rational and irrational numbers. Supremum and infimum of a set.

Concepts of Mathematics requires prerequisite knowledge of all students, including Pre-College students, before enrolling in the course. This knowledge can be demonstrated by passing grades in CMU courses such as 15-112 (Fundamentals of Programming and Computer Science) or 21-120 (Differential and Integral Calculus). Equivalently, students could have scored 5 on the College Board AP Computer Science A exam, 5 on the Calculus AB or Calculus BC exam; 6 or 7 on the International Baccalaureate Higher Level Computer Science exam, 6 or 7 on the IB Mathematics HL exam; A on the Cambridge International/EdExcel Advanced Level or Singapore H2 level in Computer Science, or A or B in the Mathematics C/Advanced Math. Some courses taken at other colleges may also be considered equivalent.

*The course request form will provide you an opportunity to describe your prior background in CS and/or math.*

**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.

### **33-115 Physics for Future Presidents (9 units)**

Countless topics of social and political importance are intimately related to science in general and physics in particular. Examples include energy production, global warming, radioactivity, terrorism, and space travel. This course aims to provide key bits of knowledge based on which such issues can be discussed in a meaningful way, i.e., on the level of arguments and not just vague beliefs. We will cover an unusually wide range of topics, including energy, heat, gravity, atoms, radioactivity, chain reactions, electricity, magnetism, waves, light, weather, and climate. No calculus or algebra will be required.

### **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.

### **33-141 Physics I for Engineering Students (12 units)**

This is a first semester, calculus-based introductory physics course. Basic principles of mechanics and thermodynamics are developed. Topics include vectors, displacement, velocity, acceleration, force, equilibrium, mass, Newton's laws, gravitation, work, energy, momentum, impulse, torque and angular momentum, temperature, heat, equations of state, thermodynamic processes, heat engines, refrigerators, first and second laws of thermodynamics, and the kinetic theory of gases. Prerequisite: one semester of calculus (e.g, 5 on AP Calculus AB or Calculus BC exam); high-school physics very strongly recommended.

### **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 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-credit course with passing grade).

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

Centers around the new recording studio in the School of Music: how the studio works and how to record various types of music, using the recording studio and the Kresge Recital Hall, which has audio and video links to the recording studio. The method of instruction is to learn by doing, and the goal is to achieve professional-sounding results. Equipment includes a complete 24-track Pro-Tools system, professionally designed control room and an interesting array of microphones. All recording is direct to hard disc. 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. There are no specific prerequisites for the course, although reading music and/or playing an instrument is helpful.

### **73-102 Introduction to Microeconomics (9 units)**

A one-semester course that teaches the fundamentals of microeconomics. Students will learn how microeconomic analysis can explain market successes, market failures, and how government intervention might improve outcomes. In addition to an investigation of firm behavior and consumer behavior, attention will be paid to: Game Theory, Behavioral Economics, Economics of Time and Risk, Economics of Information, Experimental Economics, and Auctions and Market Design. Students will also learn how to integrate basic data analysis and statistics.

### **73-103 Introduction to 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: students must know microeconomics before enrolling in this course. This can be demonstrated by a "C" or higher in 73-102, a "5" in AP Microeconomics, a "6" or "7" on the IB HL Economics exam, an "A" on Cambridge/EdExcel A-level, or another college course.

### **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. Two topics are available this summer:

*See below for information on both sections:*

*76-101E - Borders and Bordering Practices*

*76-101F – Video Games and Culture*

### *76-101E - Borders and Bordering Practices*

Borders are everywhere. The U.S.-Mexico border alone extends over more than two thousand miles, sprawls through twenty-eight U.S. counties, spans across four states, and fissures two nations in a disruptive and imposing way. Some find that borders' material outgrowths, walls and biometric security, are theatrical attempts to maintain border control, while others view these as a sign of declining national sovereignty. Regardless of what they symbolize or show about state power, borders' militarized spaces dramatically impact how people live, work, move, and relate to each other.

This course engages with the constructions of borders and bordering practices that affect our lives and movement internationally and in the U.S. Drawing on insights from theorists in critical border studies like Gloria Anzaldúa, Wendy Brown, Peter Andreas, and Ayelet Schachar; writers like Valeria Luiselli; and media representations like documentaries, podcasts, and photography, we will engage with the following questions: How do borders constrain the way we understand self and other? How are notions like native, migrant, and citizen constituted? What does an emancipatory or ethical view of the border look like? We will read arguments about these issues in order to craft an academic research proposal and argument related to the present-day circumstances of borders, migration, and state power.

### *76-101F – Video Games and Culture*

This course focuses on arguments related to the social impact of video games in contemporary culture. The course uses Gamergate, a controversy in gaming culture about the role of women in both the industry and fan culture, to identify a crisis in gaming culture in 2014. 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 gaming culture has evolved and developed since Gamergate. Students are asked to write papers analyzing an argument about video games, synthesizing multiple perspectives on a gaming-related issue, and then finally contributing their own argument to a discussion about video games and their social impact.

### **76-221 Books You Should Have Read by Now** (9 units)

Summer 2022: Fantasy & Myth. This course will trace the history of the fantasy literary genre from its origins in myths and legends to our contemporary understanding of fantasy in popular culture. Using texts ranging from the epic poem *Beowulf* to the 20th century works of authors like J. R. R. Tolkien and Ursula K. Le Guin, we will look at how works of fantasy construct new worlds that reimagine our own reality, providing readers throughout history with new perspectives on their own past, present, and possible futures. We will be reading significant works of fantasy of various forms and literary periods, paying attention to how tropes of fantasy are reproduced or subverted to produce various subgenres of fantasy writing, and raising questions about what exactly we mean when we label a text a work of fantasy.

### **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, homeworks 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.



**80-130 Introduction to Ethics** (9 units) \*\*\*\* New enrollment is closed – see page 2 for information.

Philosophical ethics, or moral philosophy, covers a lot of ground. It asks and tries to answer questions like: What's good in life? What matters? What should I (and others) do? How should I (and others) act? What kinds of things out there must be treated ethically? Do we have moral duties to (at least some) non-human animals? Is morality subjective? Are there actually any objective moral truths? Morally speaking, what (if anything) is the difference between killing someone, and simply letting them die? In trying to answer these questions (and others), we'll engage in some wonderfully weird thought experiments, class discussions, smaller group discussions, debates, etc. We'll study and critique several moral theories which try to explain and help guide our moral judgments, and we'll try to apply these theories to real-life moral controversies. Past classes covered topics including drug prohibition, abortion, euthanasia, and physician-assisted suicide. This is an introductory philosophy class, so you'll be learning how to read, critique, do, and write philosophy generally, not just ethics. Considerable time and effort, both in lectures and in recitations, will be spent helping you learn to recognize and evaluate philosophical arguments, as well as empowering you to create, improve, and defend your own arguments in class assignments.

*Elementary I language courses have no prerequisites. Courses beyond that level require placement through the Modern Languages Department. If interested, contact Dr. William Alba ([alba@cmu.edu](mailto:alba@cmu.edu)).*

**82-137 Chinese Calligraphy: Culture and Skills** (9 units)

Chinese calligraphy is a crucial part of Chinese culture and world art. It is also a clear manifestation of Chinese philosophy that has influenced Chinese people for several thousand years. This introductory course on Chinese calligraphy provides students with basic knowledge of Chinese calligraphy and how it mirrors Chinese history, culture, and philosophy. It will also introduce the fundamental characteristics of the Chinese writing system, its cultural content, and principles of formation as well as the skills used in Chinese calligraphy. At the end of the course, students will have a good understanding of Chinese characters and their cultural and philosophical background but also be able to appreciate the art and beauty in Chinese calligraphy. Classes include lectures, movies, discussions, hands-on practice, and projects. Guest speakers may also be arranged if opportunities should arise. No prerequisites.

**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.

**82-172 Elementary Japanese II** (12 units)

This course is a sequel to Elementary Japanese I (82-171) and continues to further 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.



**82-173 Introduction to Japanese I (9 units)**

This course is the first part of a two-semester sequence (82-173, 82-174) for students with no background in Japanese. Since it covers the first half of 82-171 in one semester, it is suitable for those students who need sufficient practice time both in and outside of class to begin their study of 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 (three in-class hours per week plus six hours of required homework). 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. Students who intend to minor or major in Japanese should consult with the Pre-College Program Director and with Modern Languages before deciding on 82-171 or 82-173. Students with prior knowledge of Japanese must take the placement exam.

**82-174 Introduction to Japanese II (9 units)**

This course is a sequel to Introduction to Japanese I (82-173) for students with no background in Japanese. Since the course covers the second half of the 82-171 in one semester, it is suitable for those students who need lots of practice time both in and outside class. It continues to further the development of communicative language proficiency through oral practice, aural comprehension, reading, writing, and the study of cultural aspects of Japanese society. The elementary level is also designed to help students learn to reflect upon and draw upon strategies used by good language learners in their second language study. Regular homework, quizzes, tests, presentations, and class participation are mandatory (three in-class hours per week plus six hours of required homework). 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. Upon completion of this course, students can take 82-172.

**82-271 Intermediate Japanese I (12 units)**

Intermediate Japanese I is the first part of a two-semester course sequence (82-271, 82-272) and starts the shift in instructional focus from learning to use Japanese in a culturally appropriate manner to using Japanese to learn Japanese culture. The course has a dual focus on developing communication skills and cultural analysis skills and takes an integrated approach to practicing the two kinds of skills simultaneously in meaningful, goal-oriented learning activities. In pairs and small groups, students will discuss various cultural topics of current relevance for Japan by drawing on authentic materials (e.g., newspaper articles, comic strips, TV commercials, films) as well as learner materials in the textbook and the course packet and by comparing Japanese culture and their own in regard to those topics. As part of the course work, students will also enjoy an opportunity to have a small group discussion on the topics of their term projects with Japanese residents in Pittsburgh as well as a one-on-one discussion on the same topics with a speaking assistant.

**82-272 Intermediate Japanese II (12 units)**

Intermediate Japanese II is the second part of a two-semester course sequence (82-271, 82-272) and continues the shift in instructional focus, which started in Intermediate Japanese I, from learning to use Japanese in a culturally appropriate manner to using Japanese to learn Japanese culture. With a dual focus on developing communication skills and cultural analysis skills, the course takes an integrated approach in designing meaningful, goal-oriented learning activities so that students can practice communication skills and cultural analysis skills simultaneously. In pairs and small groups, students will discuss various cultural topics of current relevance for Japan by drawing on authentic materials (e.g., newspaper articles, comic strips, TV commercials, films) as well as learner materials in the textbook and the course packet and by comparing Japanese culture and their own in regard to those topics. As part of the course work, students will also enjoy an opportunity to have a small group discussion on the topics of their term projects with Japanese residents in Pittsburgh as well as a one-on-one discussion on the same topics with a speaking assistant.

### **82-273 Introduction to Japanese Language and Culture (9 units)**

This course is an introduction to modern Japanese culture, examining Japanese society, its socialization processes, and the role of language in expressing, transmitting, and maintaining social structure and cultural values. Learning key concepts to better understand Japanese culture and society from the post war to present-day Japan, students develop a range of skills to analyze cultural perspectives from observable behaviors and social phenomena. Students explore cultural diversity in relation to the traditional view of Japan's homogeneity. This course is taught in English and is intended for those who want to gain better understanding of modern Japanese society and of their own cultural identities, as well as for students of the Japanese language.

### **82-278 Japanese Film and Literature (9 units)**

The course covers modern Japanese literature (from 1868 to the present) and post-war Japanese film (from 1945 to the present). The modern film and literature have inherited unique premodern characteristics such as an open-ended plot without any closure, a non-linear as well as linear way of storytelling, and a preference of atmosphere and beauty over a structured plot. On the other hand, partly owing to the Western influences, they have seen innovations in the art of storytelling (e.g., contextualization of modern self in an open-ended story, filming techniques). The course focuses on the artistic media (e.g., language, sound, color, film techniques) of each film and literary work and their interactions with the plot and the historical and social contexts of each work. It also explores how the art of storytelling is in tandem with the vicissitudes of human condition as illustrated in Japan's variety of films and literature in the twentieth and twenty-first century. Analyses of each storytelling not only reveal cultural dynamics behind Japanese modernity, but also invite students to find new insights into Japanese culture and their ways to perceive 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, the World War II experiences, emerging voices of minorities and the popular culture (e.g., anime and subculture).

### **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 non-linear as well as linear ways of storytelling with its distinct modes of visual representation, such as character designs and vibrant use of colors to reconstruct the environment/social reality, 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 on cultural/social analyses of animated works such as the fantastic of the Studio Ghibli production and Cyberpunk's post-apocalyptic worldview in consultation with the scholarship of anime as a global cultural phenomenon. Equally important are to locate the origin of Japanese animation, which is also to be investigated through analyses of 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 Cultural Complexities: Multicultural 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.

**82-371 Advanced Japanese I (9 units)**

This course emphasizes the acquisition of advanced level of communicative language proficiency by immersing students in authentic cultural explorations. The curriculum includes authentic reading texts, multimedia, interviews with native speakers, and viewing and summarizing Japanese films that depict current Japanese society and cultural trends. The course also provides an individualized learning environment throughout the term in improving students' language skills and cultural proficiency. Students may pick a topic of personal interest for their term project thesis. A student with prior experience in Japanese must take the placement exam.

**82-372 Advanced Japanese II (9 units)**

This course continues to further improve the acquisition of advanced level communicative language proficiency by immersing students in authentic cultural explorations. The curriculum includes authentic reading texts, multimedia, interviews with native speakers, and viewing and summarizing Japanese films that depict current Japanese society and cultural trends. The course also provides an individualized learning environment throughout the term in improving students' language skills and cultural proficiency. Students may pick a topic of personal interest for their term project thesis. A student with prior experience in Japanese must take the placement exam.

**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:

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**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 COVID-19 pandemic.

**Other courses may become available.** Please check the Pre-College Summer Session website regularly for updates to this course listing.

### Changelog

- 2022-06-02 Modified course schedule for 57-341.
- 2022-05-27 Initiated enrollment closure for 15-112, 33-141, and 36-200, with waitlists.
- 2022-05-11 Added prerequisite information for 73-103. Added recommended prerequisite for 33-141. Deleted 33-142 (Physics II for Engineering Students); course is not available. Initiated enrollment closures for 15-110, 21-127, 80-130, with waitlists for 21-127, 80-130.
- 2022-04-14 Added section descriptions for 76-101 (Interpretation and Argument).
- 2022-04-11 Updated course times for 15-112 (Fundamentals of Programming and Computer Science), 33-141 (Physics I for Engineering Students), and 82-171 (Elementary Japanese I). Added course description and course time for 73-103 (Principles of Macroeconomics). Removed 79-338 (Sports in America) and 80-212 (Arguments and Logical Analysis).
- 2022-03-04 Removed references to online courses (all courses are in-person only). Added course description for Principles of Microeconomics.
- 2022-03-03 Updated course time for Sound Recording Workshop. Minor edits for clarification
- 2022-02-28 First public version
- 2022-02-24 Final draft for internal review