
Academics

Extraordinary Student Achievement 2017



MINERVA®

Student Achievement

Bachelor's Degrees

Student Learning

The Minerva Schools at KGI (MSKGI) focus on the success of our students. We provide active learning in an all-seminar program because this form of pedagogy has been shown to be superior to traditional lecture-based instruction. Our students learn to work as individuals and as members of teams, and learn habits of mind and foundational concepts that will serve them in good stead for a lifetime. We also support co-curricular and extracurricular opportunities and provide robust student support services to assist students through challenges they may face while enrolled in our programs.

Student Demographics

One of the key characteristics of MSKGI is its global character. Students come to Minerva from all over the world, and study and live in seven major world capitals during the four-year undergraduate program. All students are full-time.

This year our 285 second- and third-year students will study in Seoul in fall 2017 and in Hyderabad in spring 2018. The incoming first-year students, about 210 of them, will study in San Francisco. Our students come from about 60 different countries with no single country dominating the enrollment. They are about half men and half women.

Student Demographics

Minerva matriculated a Founding Class of 28 students in the Fall of 2014 and an Inaugural class of 111 students in the Fall of 2015. After taking a gap year, the Founding Class joined the Inaugural class in Berlin, Germany to form Minerva's first full cohort of students. This cohort will be the first to earn a Minerva undergraduate degree in the Spring of 2019.

Retention by Cohort

Cohort	Initial Enrollment	Enrollment After First Year	Current Enrollment	First-Year Retention Rate	Overall Retention Rate
Class of 2019	139	126	121	91%	87%
Founding Class	28	27	25	96%	89%
Inaugural Class	111	99	96	89%	87%
Class of 2020	159	155	155	97%	97%

Degree Learning Objectives

Degree Learning Objectives

Minerva expects all undergraduate students to meet the following Degree Learning Objectives (DLOs). These DLOs are introduced in the first-year Cornerstone courses and consist of “habits of mind” and “foundational concepts,” which are threaded and assessed throughout the four years of study. A habit of mind is a mental skill that comes to be triggered automatically with practice; a foundational concept is fundamental knowledge that is broadly applicable, which typically does require deliberation. To be included, the habit of mind (H) or foundational concept (C) must:

1. be derived from an aspect of one of the four core competencies noted above;
2. lead students to be able to do something useful in ordinary life after graduation (specialized knowledge comes later in the curriculum);
3. be broadly applicable, as indicated by the fact that it is used in courses offered in at least two of Minerva’s colleges;
4. be justified either by empirical findings, proofs, or well-established best practices—particularly those that support functioning ethically in a global context; and
5. lead to specific behaviors that can be evaluated with rubrics; the HC cannot be so general or vague that it cannot be systematically and reliably evaluated.

Each of the following four core competencies has been broken down into more specific aspects, and each of these aspects in turn includes a set of habits of mind and foundational concepts.

Thinking Critically

Evaluating Claims

- Listen well and be mindful of preconceived judgments.
- Actively and critically engage with texts and other forms of communication.
- Identify how prior experiences and expectations affect inferences drawn from different forms of communication, and react accordingly.
- Distinguish among scientific hypotheses, theories, facts and laws.
- Identify and analyze pseudoscientific claims.
- Evaluate applications of the scientific method.
- Evaluate whether hypotheses are based on plausible premises or assumptions.
- Evaluate whether hypotheses lead to testable predictions.

Evaluating Justifications

- Identify and appropriately structure the information needed to support an argument effectively.
- Distinguish between categories and types of information to determine source quality.
- Situate a work in its relevant context (e.
- Analyze and apply deductive logic.
- Formulate multiple well supported generalizations from available evidence.
- Identify and correct logical fallacies.
- Use estimation techniques to determine whether quantitative claims are plausible.

Analyzing Data

- Apply and interpret fundamental concepts of probability, including conditional and bayesian probabilities.
- Identify different types of distributions and make inferences based on samples from distributions appropriately.
- Calculate and interpret descriptive statistics appropriately.
- Apply and interpret confidence intervals.
- Apply and interpret measures of correlation; distinguish correlation and causation.
- Apply and interpret regression.
- Apply, interpret, and distinguish practical and statistical significance.

Analyzing Decisions

- Analyze the relations among interacting motivating factors that shape behavior.
- Identify and evaluate underlying goals and the values on which they are based, as well as the guiding principles that determine how an individual or group will try to attain these goals.
- Consider different types of costs and benefits for all stakeholders.
- Identify psychological biases and react accordingly.
- Identify and minimize bias that results from searching for or interpreting information to confirm preconceptions.
- Identify biases that result from availability, representativeness, and other problem-solving heuristics and learn to correct errors.
- Identify and analyze the effects of “sunk costs” in decision making.
- Identify and analyze the effects of temporal discounting in decision making.
- Identify and analyze the effects of risk versus uncertainty.
- Consider multiple choices simultaneously when making decisions.
- Apply and interpret decision trees to explore the consequences of alternative choices.

Analyzing Problems

- Identify gaps (in knowledge, in market offerings, in a range of ideas, etc).
- Characterize the nature of the problem.
- Organize problems into tractable components and design solutions.
- Apply and evaluate game-theoretic models.
- Identify the relevant features of system, problem, or model to represent as dependent or independent variables.

Thinking Creatively

Facilitating Discovery

- Evaluate the link between initial data collection and subsequent hypothesis-driven research.
- Evaluate the link between theories and the design of studies.
- Recognize how models can be used to explain a set of data and generate new predictions.
- Interpret, analyze, and create data visualizations.

Applying Research Methods

- Apply and interpret principles of experimental design.
- Design and interpret observational studies.
- Design and interpret primary research performed as interviews or surveys (individually or in groups).
- Design and interpret case studies.
- Evaluate and incorporate replicability in empirical study designs.
- Identify and evaluate appropriate controls for empirical study designs.
- Design effective sampling methods and evaluate the interpretation of results accordingly.

Solving Problems

- Use analogies in problem solving appropriately.
- Identify and apply constraint satisfaction as a way to solve problems.
- Apply heuristics to find creative solutions to problems and to formulate new products and processes.
- Evaluate and use effective strategies to learn or teach specific types of material.
- Apply heuristics to make decisions and solve problems efficiently.
- Apply algorithmic thinking strategies to solve problems and effectively implement working code.
- Apply and interpret simulation modeling.
- Evaluate and apply optimization techniques appropriately.
- Apply iterative design thinking to conceive and refine products or solutions.

Communicating Effectively

Using Language

- Formulate a well-defined thesis.
- Effectively organize communications.
- Communicate with a clear and precise style.
- Follow established guidelines to present communications professionally.
- Understand and use connotations, tone, and style.
- Tailor oral and written work by considering the situation and perspective of the people receiving it.
- Describe, analyze, or organize characteristics of language that convey accuracy, credibility, and authority to craft or infer meanings in a nonfiction work.
- Describe, analyze, and organize features of language and fictional worlds to craft or infer possible meanings of prose or poetry.

Using Nonverbal Communication

- Interpret and use body language and facial expression.
- Apply principles of perception and cognition in oral and multimedia presentations and in design.
- Describe, analyze, and organize characteristics of visual images to infer or craft the meanings of visual communications.
- Describe, analyze, and organize characteristics of sounds to infer or craft auditory communications.
- Identify, analyze, and organize characteristics to infer possible meanings in a multimedia work.

Interacting Effectively

Interacting Within Complex Systems

- Analyze and apply decompositions of complex systems into constituent parts.
- Describe interactions among events or characteristics of a system at different levels of analysis to generate explanations of phenomena.
- Identify emergent properties of complex systems and discern their causes.
- Identify ways that multiple causes interact to produce complex effects.
- Analyze how network structure affects interactions within a network.
- Recognize the role of attractors and sensitivity to varying conditions in the behavior of complex systems.

Negotiating and Persuading

- Use a structured approach to negotiation to reach desired objectives.
- Prepare multidimensional Best Alternatives to a Negotiated Agreement (BATNAs).
- Identify and analyze common ground to determine what you can concede, and react accordingly.
- Use choice architecture to influence other people's decisions.
- Analyze how reinforcement and punishment alter behavior and utilize them appropriately.
- Recognize and use appropriate cognitive tools to persuade.
- Recognize and use appropriate emotional tools of persuasion.
- Present views and work with an appropriate level of confidence.

Working With Others

- Apply principles of effective leadership.
- Recognize how to influence group interactions by exerting different types of power.
- Recognize the strengths and weaknesses of a position, and develop a plan to achieve your goals accordingly.
- Recognize and leverage people's different skills, abilities, traits, attitudes and beliefs.
- Identify and mitigate conformity in group settings.
- Understand the impact of organizational structure on individual performance and collaborative projects.
- Identify and monitor your strengths and weaknesses; mitigate behaviors and habits that impair effective performance.
- Use emotional intelligence to interact effectively.
- Follow through on commitments, be proactive, and take responsibility.

Resolving Ethical Problems

- Recognize and work to mitigate unfair outcomes and practices.
- Identify ethical problems, framing them in a way that will help to resolve them.
- Resolve conflicts among ethical principles by using the context to prioritize.

Program Learning Objectives

In addition to the Degree Learning Objectives, students are expected to master field-specific Program Learning Objectives.

College of Arts and Humanities

- Understand and apply levels of analysis in Arts and Humanities
- Master multimodal communications
- Understand and apply principles of human creativity and emotional expression
- Understand and apply principles of philosophy and ethics
- Understand and apply principles and practices of historical analysis

College of Computational Sciences

- Master inductive and deductive reasoning
- Design, develop and use formal and computational models to solve problems
- Evaluate and analyze data and information
- Design, develop and use decision-support tools
- Think algorithmically and create algorithms to solve problems
- Understand and apply essential descriptive and inferential statistics

College of Natural Sciences

- Analyze scientific claims
- Characterize the predictive value of a scientific claim
- Grasp and utilize methods of ideation for problems requiring natural science expertise
- Utilize natural sciences in design of technological solutions
- Understand and apply research design and the scientific method

College of Social Sciences

- Understand and apply levels of analysis in the Social Sciences
- Master complex systems analysis
- Understand and apply principles of individual human behavior
- Understand and apply principles of human group behavior
- Understand and apply principles and practices of cultural variation, contemporary and historical

College of Business

- Evaluate, analyze and model data and information
- Design, develop and use decision-making tools
- Understand and engage in effective group dynamics
- Understand and apply the essential concepts underlying finance
- Understand and apply the essential concepts underlying marketing

Results of Assessments

MSKGI uses both internal and external assessments to measure student learning. The statistics given here are from the past three academic years.

Analyses of the Core Competencies

The habits of mind and foundational concepts derived from Minerva's core competencies are introduced in the first-year Cornerstone courses. These outcomes continue to be assessed over the next three years in every Minerva course. This results in continuous evaluation of student performance on MSKGI's undergraduate degree learning outcomes. Outcome data are analyzed at the end of each year.

Core Competency First-Year Benchmark

Competency	Class of 2019	Class of 2020
Thinking Critically	100%	100%
Thinking Creatively	100%	92%
Communicating Effectively	89%	95%
Interacting Effectively	100%	100%
All Core Competencies	89%	90%

Core Competency Second-Year Benchmark

Competency	Class of 2019
Thinking Critically	100%
Thinking Creatively	100%
Communicating Effectively	89%
Interacting Effectively	100%
All Core Competencies	89%

As students continue to be directly assessed on the habits of mind and foundational concepts introduced in the first-year curriculum in later courses, they receive feedback on their ability to transfer these outcomes to their upper-division coursework.

Successful Transfer Rate of Learning to New Contexts

Major Courses	Class of 2019
Arts & Humanities Courses	81%
Business Courses	86%
Computational Sciences Courses	89%
Natural Sciences Courses	81%
Social Sciences Courses	93%
Overall	89%

Collegiate Learning Assessment + (CLA+)

Minerva administered the CLA+ test to the founding class and the M2020 cohort to provide an outside assessment the effectiveness of the first-year curriculum. The assessment was given at the beginning and end of the academic year. It will

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be administered again when each cohort graduates. Each year the Council for Aid to Education administers the CLA+ to more than 20,000 undergraduate students attending approximately 100 different colleges and universities. More information about the CLA+ is [available here](#). The tables below gives results when comparing first-year MSKGI students to freshmen and seniors at other institutions.

CLA+ Results

Founding Class	Fall 2014	Spring 2015	Difference
Performance Task			
Freshman Percentile	95	99	+4
Senior Percentile	80	98	+18
Selected Response			
Freshman Percentile	99	99	0
Senior Percentile	98	98	0
Total			
Freshman Percentile	99	99	0
Senior Percentile	94	98	+4
Class Of 2020	Fall 2014	Spring 2015	Difference
Performance Task			
Freshman Percentile	95	99	+4
Senior Percentile	79	93	+14
Selected Response			
Freshman Percentile	99	99	0
Senior Percentile	97	99	+2
Total			
Freshman Percentile	96	99	+3
Senior Percentile	78	99	+21

Student Engagement

Minerva administers the State of Minerva (SOM) survey at the end of each academic semester to collect self-reported data from students. The SOM typically has a high response rate, 88.1% for the Spring 2017. The survey provided the following data on student engagement and learning at MSKGI.

- 93% of students reported participating in student experience and professional development activities each month.
- 82% of students responding reported evolving their personal and professional goals over the past academic year.
- 81% reported being exposed to world views they had not previously considered; 52% reported a deepened understanding of character traits and community values.
- 60% reported organizing or contributing to an initiative or project for the Minerva community.
- 80% of first-year undergraduates reported engaging with civic partners or local organizations.
- 70% reported applying the skills they learned in the classroom in real-world, employer-relevant contexts outside of the classroom.

Degree Learning Outcomes: Master of Science in Applied Analyses and Decision Making

The Master of Science in Applied Analyses and Decision Making (MSAADM) program is designed to impart critical professional skills, with an emphasis on research, analysis, and practical decision-making. Students learn to interpret complex data, find rational conclusions, devise potential solutions, and evaluate the implications of your choices.

The first master's cohort matriculated in the fall of 2016. These students will earn their degrees at the end of summer 2017.

The following learning outcomes are associated with the MSAADM degree:

- Identify and research important real-world problems; analyze problems and articulate deep understanding of the nature and complexity of the problems seen from multiple perspectives.
- Apply multiple methods of analysis, approaches, and theories to formulate possible solutions to problems, integrating different approaches and using logical, mathematical, statistical, and qualitative methods.
- Utilize all available information and appropriate analytical tools to assess to select the most effective solutions to problems, weighing all factors including risk, ethical implications, advantages and disadvantages, and competing interests.
- Design processes to implement decisions effectively and to measure the efficacy and achievement of planned objectives.

Degree Learning Outcomes: Master of Arts in Applied Arts & Sciences

The Master of Arts in Applied Arts & Sciences (MAAAS) is a concurrent master's program. Qualified Minerva undergraduate students earn the MAAAS along with (or shortly after) their bachelor's degrees by taking additional coursework during the last two years of the undergraduate degree program and successfully completing a team master's project.

The first students will be admitted to the MAAAS program in spring 2018 and graduate in spring 2019.

In addition to the bachelor's degree learning outcomes, MAAAS students will:

- Elucidate ways in which theories, approaches or concepts from different fields are similar and dissimilar; illustrate the relationship to one another.
- Disaggregate, adapt, and reformulate theories, approaches or concepts from different fields to address an important applied issue or challenge.
- Demonstrate how theories, approaches or concepts from different fields can be integrated to answer a question.
- Articulate and defend the significance and implications of conclusions drawn from applied approaches in terms of challenges, trends and developments in a social or global context.
- Produce an original piece of work that synthesizes at least two disciplinary approaches to address an important societal problem in a meaningful way.

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