NINE WAYS OF KNOWING

The Nine Ways of Knowing curriculum applies to students who entered Barnard before Fall 2016.

First-Year Foundations

Two courses are required of all first-year students to ensure that their skills in reading, writing, and speaking continue to develop in ways that will support their learning throughout their years at Barnard. First-Year Foundation courses are deliberately kept small; they focus on individual participation and on methods of research, analysis, and revision.

First-Year English

Barnard’s liberal arts philosophy takes as its starting point the idea that every student, whatever her level of academic achievement, can continue to improve her skills in writing, analysis, and argumentation. Therefore, all first-year students are required to take a one-semester writing course titled First-Year English (ENGL BC1201 First-Year English: Reinventing Literary History or ENGL BC1204 First-Year English: Reinventing Literary History (Workshop)), designed to cultivate and develop expository writing and related tools of scholarship. Students choose to study one of three rubrics: I. Legacy of the Mediterranean features a curriculum of classic texts representing key intellectual moments that have shaped Western culture; II. Women and Culture features a more global curriculum exploring the role of women in literature and culture; or III. The Americas features a curriculum of texts that exemplifies the dynamic relationship between North, South, and Central American literatures. All three literary traditions are historicized in interdisciplinary contexts to foster better writing across the curriculum.

Transfer students who did not pass a satisfactory course at their previous institution are not required to take ENGL BC1201, but must take ENGL BC3103 The Art of the Essay or ENGL BC3104 The Art of the Essay or a 3-point literature course from the Barnard English department offerings.

Students who complete a course satisfying this requirement should be able to attain at least one of the following outcomes:

- Analyze the thematic structure of literary works through close reading
- Translate critical reading into elegant and persuasive expository writing
- Conduct interdisciplinary research to ground literary works in historical context
- Document sources and incorporate scholarship into original analytical arguments
- Avoid plagiarism and other academic violations of Barnard’s Honor Code
- Develop a sense of literary history
- Gain confidence in speaking as well as writing skills in a small seminar setting
- Appreciate the value of incisive writing in courses across the curriculum

First-Year Seminar

First-year students take this one-semester course designed to develop the intellectual skills and styles central to subsequent academic work. This course emphasizes the enhancement of writing and communication skills and the group-discussion mode of intellectual inquiry and discourse.

Seminars center on major themes or issues, and participants read and discuss selected important philosophical, historical, literary, or scientific texts. Students and faculty engage in an extended consideration of a theme of general human concern, one that goes beyond departmental boundaries.

Transfer students are not required to take the First-Year Seminar.

Students who complete a course satisfying this requirement should be able to attain at least one of the following outcomes:

- Develop their skills in critical reading and analysis, writing, and effective speaking
- Assess and use textual evidence in support of oral and written arguments
- Explore important issues through significant texts ranging across genres, disciplines, and historical periods

Physical Education and Health

Degree Requirement: One Physical Education course is required for graduation. This course must be completed by the end of the first year. One point will be earned for this one course. One additional point of Physical Education may be counted towards the 122 points required for graduation. Transfer students must consult their transfer credit evaluation to see if a Physical Education class is needed.

Aim: To enable students to become aware of, and knowledgeable about, their physical being through participation in fitness and sports activities. Students are encouraged to enroll in additional activity and self-paced exercise courses toward the attainment of lifelong well-being.

General Education Requirements

The aim of the General Education Requirements is to ensure that each Barnard graduate confronts and engages in central ways of knowing the world. These ways of knowing—divided into nine key areas—include, but also bridge, the traditional disciplines of the liberal arts and sciences. Inquiry into these areas establishes the basis for a Barnard education. Each student studies, from analytical, quantitative, and artistic perspectives, the major means by which human knowledge has been constructed.

To allow for flexibility within this framework, a student chooses among the designated courses that fulfill each of the nine requirement areas. She will find some courses that offer a broad view of a field, exploring issues that help create an educated citizenry; other courses satisfy the purposes of general education by close scrutiny of critical methods and their specific application. Thus, each student will shape her own academic program, deliberately and distinctively, by electing a combination of wide-ranging introductory courses and more specialized upper level courses to fulfill the General Education Requirements. The areas included in the General Education Requirements are:

1. 1 Course in Ethics and Values (EAV)
2. 1 Course in Social Analysis (SOC)
3. 1 Course in Historical Studies (HIS)
4. 1 Course in Cultures in Comparison (CUL)
Aim: To introduce ways of thinking, both past and present, about the formation of human values, their role in guiding action, and their susceptibility to rational reflection and critical discussion. This requirement allows students to discover how established disciplines in the humanities, social sciences, and natural sciences—as well as newer interdisciplinary fields—approach a wide range of value-related issues. Courses may address such questions as: What does it mean to follow "the way of reason"? What are the sources of human values? How do we arrive at our conceptions of virtue and obligation, and how do such conceptions shape our notions of a good life and a just society? How have questions about values emerged in different traditions at different times? Other possible subjects include the intersecting ethical dilemmas of private and public life, the relation between moral thought and moral action, and issues of human rights, cultural diversity, and global equity.

2a. Social Analysis (for current students)

Requirement: One course that prepares students to analyze societies and social categories using systematic theoretical and empirical inquiry. These courses must critically and constructively evaluate social structures and practices.

Aim: Social analysis investigates and explains the form and function of social institutions, including the categories on which they are based, their informal and formal operations, and their effects. It is especially concerned with how institutions vary across time and place, how they are shaped by individual and group behaviors, and how power is distributed across different groups. Students will study individuals, groups, or institutions, or the relations among them. They will engage empirical evidence from a variety of sources, such as interviews, oral histories, cultural artifacts, surveys, field observation, experiments, texts and official records. They will learn strategies to make sense of these data such as causal reasoning, hypotheses testing, and critical analyses of the meanings and measures of empirical categories. Fundamentally, social analysis questions "what is" and contemplates what could or should be.

Students who complete a course satisfying this requirement should be able to attain at least one of the following outcomes:

- Apply the methods of research and inquiry of a discipline to the study of human behavior in a social setting/context
- Evaluate the usefulness of evidence for assessing any specific phenomenon and to question the nature of the evidence
- Demonstrate a critical understanding about the social forces that shape opportunity and power in society
- Demonstrate a critical understanding of the interplay between individual action and collective social life
- Identify how scholarships in the discipline have approached social problems and influenced organized efforts to ameliorate social problems

2b. Social Analysis (for students entering before Fall 2011)

Requirement: One course that acquaints students with the central concepts and methods of the social sciences, while also critically
examining social structures and processes, and the roles of groups and individuals within them.

**Aim:** To introduce various ways of analyzing social structures and processes, and to explore how these institutions and processes both shape and are shaped by group and individual behavior. Courses will focus on a variety of institutions and processes, from the family, to the nation-state, to the international economy. All courses will address fundamental questions such as: How are individual and collective human behavior linked to the cultural, economic, and political context in which they occur? How is power distributed across different groups and among individuals? How do social systems develop and change? How can we come to better understand societal dynamics through a variety of quantitative and qualitative methods?

### 3. Historical Studies

**Requirement:** One course enabling students to study times and traditions of the past, to learn theories and methods of historical analysis, and to discover how different concepts of history shape our understanding of both past and present.

**Aim:** To emphasize the importance of historical knowledge for understanding various aspects of human experience and activity, and to develop the skills necessary to conduct or evaluate historical research. Coursework will demonstrate how history is not a simple record of past events, but an interpretation of the past shaped by the theories, methods, and data used to construct it. Among the questions to be raised are: Whose past is remembered? How is it remembered? To serve what purposes?

Students who complete a course satisfying this requirement should be able to attain at least one of the following outcomes:

- Identify the historically specific social, political, and economic structures and agencies, as well as dominant ideas, relevant to the period or theme of the course
- Identify the main historiographical traditions pertaining to the period or theme of the course
- Evaluate the methodology and evidence used by historians to study the period or theme of the course

### 4. Cultures in Comparison

**Requirement:** One course that compares two or more cultures from the perspectives of the humanities and/or social sciences.

**Aim:** To study the diversity and the commonality of human experience, and to examine and question personal cultural assumptions and values in relation to others. Through comparative methods, courses will explore the beliefs, ideologies, and practices of different peoples in different parts of the world, across time, and through migrations. Courses may include comparison of cultures from two or more geographical areas or from two or more cultures within one area, and may approach the subject matter using anthropological, historical, social, and/or humanistic perspectives.

Students who complete a course satisfying this requirement should be able to attain at least one of the following outcomes:

- Identify the differences and commonalities between two or more cultures
- Apply the methods of research and inquiry of a discipline to the comparative study of cultures
- Demonstrate a critical understanding of their personal assumptions and values in relation to at least one other culture

### 5. Laboratory Science

**Requirement:** Two courses with laboratory in one science chosen from among: astronomy, biology, chemistry, environmental science, physics, or psychology. Acceptable courses must meet for at least three hours of lecture and three hours of laboratory each week. **Note:** students may combine a course in Physics with an appropriate course in Astronomy.

**Aim:** To develop intellectual curiosity about the natural world and the processes of scientific experimentation; to convey an understanding of what is known or can be known about the natural world; to introduce basic methods of analyzing and synthesizing the sources of scientific information; and to create scientifically literate citizens who can engage productively in problem solving. Students are expected to master the tools of science and current understanding in one area, and are encouraged to explore the limitations of existing theories and to learn how to ask strategic questions. Laboratory exercises introduce students to techniques of scientific investigation as they make observations, carry out experimental procedures, and learn how results and analyses are communicated in specific visual, quantitative, and written forms.

Students who complete a course satisfying this requirement should be able to attain at least one of the following outcomes:

- Ask questions about the natural world that can be tested by experiments or observations
- Analyze and synthesize sources of scientific information to assess what is known, or what can be known, about the natural world
- Practice discipline-appropriate methods of scientific observation, experimentation, data collection, interpretation, and analysis
- Communicate scientific results and analyses in appropriate visual, quantitative, or written forms

**Note:** Students may fulfill part of this requirement with scores of 4 or 5 on Advanced Placement Examinations in biology, environmental science, and physics (or their International Baccalaureate equivalents).

The following combinations meet these requirements.

**Astronomy**

Select one of the following sequences:

<table>
<thead>
<tr>
<th>Sequence A:</th>
<th></th>
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<tbody>
<tr>
<td><strong>ASTR BC1753</strong></td>
<td>LIFE IN THE UNIVERSE and Stars, Galaxies, and Cosmology</td>
</tr>
<tr>
<td><strong>ASTR BC1754</strong></td>
<td></td>
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<tr>
<td><strong>ASTR C1903</strong></td>
<td>Earth, Moon, and Planets Laboratory and Astronomy Lab 2</td>
</tr>
<tr>
<td><strong>ASTR C1904</strong></td>
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<tr>
<th>Sequence B:</th>
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</thead>
<tbody>
<tr>
<td><strong>ASTR C1403</strong></td>
<td>Earth, Moon, and Planets (lecture) and Stars, Galaxies, and Cosmology</td>
</tr>
<tr>
<td><strong>ASTR C1404</strong></td>
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<tr>
<td><strong>ASTR C1903</strong></td>
<td>Earth, Moon, and Planets Laboratory and Astronomy Lab 2</td>
</tr>
<tr>
<td><strong>ASTR C1904</strong></td>
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<th>Sequence C:</th>
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<tbody>
<tr>
<td><strong>ASTR W1453</strong></td>
<td>and Stars, Galaxies, and Cosmology</td>
</tr>
<tr>
<td><strong>ASTR C1404</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ASTR C1903</strong></td>
<td>Earth, Moon, and Planets Laboratory and Astronomy Lab 2</td>
</tr>
<tr>
<td><strong>ASTR C1904</strong></td>
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The following combinations can be used for one semester of the requirement:

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<thead>
<tr>
<th><strong>Sequence D:</strong></th>
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<tbody>
<tr>
<td><strong>ASTR UN1610</strong></td>
<td>THEOR-UNIVERS: BABYLON-BIG BANG</td>
</tr>
<tr>
<td><strong>ASTR C1903</strong></td>
<td>and Earth, Moon, and Planets Laboratory</td>
</tr>
</tbody>
</table>
### Biology

Select one of the following sequences:

**Sequence A:**
- BIOL BC1001
  - REVOLUTIONARY CONCEPTS IN BIOL
  - and Global Health and Ecology

**Sequence B:**
- BIOL BC1500
  - INTRO ORGANISMAL/EVOL BIO
- BIOL BC1501
  - INTRO LAB/ORGANISMAL#EVOL BIO
- BIOL BC1502
  - INTRO CELL AND MOLECULAR BIO
- BIOL BC1503
  - INTRO LAB CELLULAR#MOLEC BIO

### Chemistry

Select one of the following sequences:

**Sequence A:** (For students that entered prior to Fall 2014)
- CHEM BC2001
  - GENERAL CHEMISTRY I
- CHEM BC2002
  - and General Chemistry II

**Sequence B:**
- CHEM BC2001
  - GENERAL CHEMISTRY I
- CHEM BC3230
  - and ORGANIC CHEMISTRY I-LEC
- CHEM BC3328
  - INTRO ORGANIC CHEMISTRY-LAB

**Sequence C:**
- CHEM UN1403
  - GENERAL CHEMISTRY I-LECTURES
- CHEM UN1404
  - and GENERAL CHEMISTRY II-LECTURES
- CHEM BC3328
  - GENERAL CHEMISTRY LABORATORY
- CHEM BC3338
  - QUANTITATIVE-INSTRMNTL TECH-LAB
- CHEM W3543

### Environmental Science

Select two of the following:
- EESC BC1001
  - Environmental Science I
- EESC BC1002
  - Environmental Science II
- EESC W1001
- EESC UN1101
  - Earth: Origin, Evolution, Processes, Future
- EESC V2100
  - Earth’s Environmental Systems: Climate
- EESC V2200
  - Earth’s Environmental Systems: Solid Earth
- EESC V2300/EEEB W2002

Students may also complete the lab science requirement by combining the Columbia SEE-U summer program with:
- EESC BC1002
  - Environmental Science II
- EESC UN1101
  - Earth: Origin, Evolution, Processes, Future
- EESC V2100
  - Earth’s Environmental Systems: Climate
- EESC V2200
  - Earth’s Environmental Systems: Solid Earth

### Physics

Select one of the following sequences:

**Sequence A:**
- Select any two of the following:
  - PHYS BC2001
    - MECHANICS - LECTURE LAB
  - PHYS BC2002
    - ELECTRICITY#MAGNETISM-LEC LAB
  - PHYS BC3001
    - CLASSICAL WAVES - LECTURE LAB

**Sequence B:**

### Biology

Select one of the following sequences:

**Sequence A:**
- BIOL UN1001
  - REVOLUTIONARY CONCEPTS IN BIOL
  - and Global Health and Ecology

**Sequence B:**
- BIOL BC1500
  - INTRO ORGANISMAL/EVOL BIO
- BIOL BC1501
  - INTRO LAB/ORGANISMAL#EVOL BIO
- BIOL BC1502
  - INTRO CELL AND MOLECULAR BIO
- BIOL BC1503
  - INTRO LAB CELLULAR#MOLEC BIO

### Chemistry

Select one of the following sequences:

**Sequence A:** (For students that entered prior to Fall 2014)
- CHEM BC2001
  - GENERAL CHEMISTRY I
- CHEM BC2002
  - and General Chemistry II

**Sequence B:**
- CHEM BC2001
  - GENERAL CHEMISTRY I
- CHEM BC3230
  - and ORGANIC CHEMISTRY I-LEC
- CHEM BC3328
  - INTRO ORGANIC CHEMISTRY-LAB

**Sequence C:**
- CHEM UN1403
  - GENERAL CHEMISTRY I-LECTURES
- CHEM UN1404
  - and GENERAL CHEMISTRY II-LECTURES
- CHEM BC3328
  - GENERAL CHEMISTRY LABORATORY
- CHEM BC3338
  - QUANTITATIVE-INSTRMNTL TECH-LAB
- CHEM W3543

### Environmental Science

Select two of the following:
- EESC BC1001
  - Environmental Science I
- EESC BC1002
  - Environmental Science II
- EESC W1001
- EESC UN1101
  - Earth: Origin, Evolution, Processes, Future
- EESC V2100
  - Earth’s Environmental Systems: Climate
- EESC V2200
  - Earth’s Environmental Systems: Solid Earth
- EESC V2300/EEEB W2002

Students may also complete the lab science requirement by combining the Columbia SEE-U summer program with:
- EESC BC1002
  - Environmental Science II
- EESC UN1101
  - Earth: Origin, Evolution, Processes, Future
- EESC V2100
  - Earth’s Environmental Systems: Climate
- EESC V2200
  - Earth’s Environmental Systems: Solid Earth

### Physics

Select one of the following sequences:

**Sequence A:**
- Select any two of the following:
  - PHYS BC2001
    - MECHANICS - LECTURE LAB
  - PHYS BC2002
    - ELECTRICITY#MAGNETISM-LEC LAB
  - PHYS BC3001
    - CLASSICAL WAVES - LECTURE LAB

**Sequence B:**

### 6. Quantitative and Deductive Reasoning

**Requirement:** One course in which students learn methods and approaches used in mathematics and related fields involving quantitative expression and logical reasoning.

**Aim:** To provide a productive acquaintance with at least one means of quantitative and deductive reasoning and to develop an ability to apply this knowledge to the analysis of new problems. Coursework will emphasize how quantitative analysis and deductive reasoning function as creative, elegant, and powerful ways of thinking and as effective sets of conceptual tools and procedures with widespread applications.

Students who complete a course satisfying this requirement should be able to attain at least one of the following outcomes:

- Demonstrate a familiarity with at least one method of quantitative or deductive reasoning
• Apply relevant conceptual tools and procedures to the analysis of problems

Note: Students may fulfill this requirement by securing Advanced Placement Credit in mathematics, chemistry, computer science, physics, or statistics (or their International Baccalaureate equivalents or equivalent transfer credit).

Astronomy
ASTR BC1753 LIFE IN THE UNIVERSE 3
ASTR BC1754 Stars, Galaxies, and Cosmology 3
ASTR C1420 Galaxies and Cosmology 3
ASTR C1403 Earth, Moon, and Planets (lecture) (some sections only) 3
ASTR C1404 Stars, Galaxies, and Cosmology (some sections only) 3
ASTR W1453 3
ASTR C1836 Stars and Atoms 3

Biology
Biol BC2286 Statistics and Research Design 3

Chemistry
CHEM BC1002 Fundamentals of Chemistry 3
CHEM BC1003 CHEMICAL PROBLEM SOLVING 3
CHEM BC2001 GENERAL CHEMISTRY I 5
CHEM UNI403 GENERAL CHEMISTRY I-LECTURES 4
CHEM W1404 3.5

Computer Science
Any 3 point course carrying degree credit except W1002 3

Economics
ECON BC2411 STATISTICS FOR ECONOMICS 4
ECON BC1007 MATH METHODS FOR ECONOMICS 4

Electrical Engineering
ELEN E1101 THE DIGITAL INFORMATION AGE 3

Environmental Science
EESC BC3025 HYDROLOGY 0, 3
or EESC BC3017 ENVIRONMENTAL DATA ANALYSIS
EESC V2100 Earth's Environmental Systems: Climate 4.5

Mathematics
Any course carrying degree credit except MATH W1003 3

Philosophy
PHIL V1401 3
PHIL UN3411 SYMBOLIC LOGIC 4

Physics
Any course of 3 points or more 3

Political Science
POLS V3222 3

Psychology
PSYC BC1101 STATISTICS LECTURE AND RECITATION 4

Sociology
SOCI BC3211 Quantitative Methods 4
SOCI UN3010 METHODS FOR SOCIAL RESEARCH 4
SOCI W3020 Social Statistics 3

Statistics
Any course of 3 points or more 3

Urban Studies
URBS UN2200 INTRODUCTION TO GIS METHODS 3
URBS UN3200 Spatial Analysis: GIS Methods and Urban Case Studies 4

7. Language

Requirement: Competence in one ancient or modern language other than English, demonstrated by completion of, minimally, the fourth sequential semester of college-level study, and preferably, a more advanced course with greater emphasis on literary and cultural traditions.

Aim: To provide basic linguistic competence in at least one language other than English, in order to familiarize students with the language, literature, and culture of at least one non-English speaking people. Students are encouraged to develop their language skills to a level that permits them to live and function in another country; to enable them to conduct research, whatever their field; and to prepare them to work effectively in an increasingly global and multicultural society. In becoming familiar with the form and structure of another language, students consider how languages function as tools for communication. Students are encouraged to apply their language skills in courses that fulfill other general education requirement areas.

Students who complete a course satisfying this requirement should be able to attain at least one of the following outcomes:

• Read, write, and translate a chosen language of study
• Communicate with speakers of the chosen language, if it is a spoken language
• Demonstrate familiarity with the culture(s) and customs associated with the language of study

Exemptions
1. CEEB SAT II score of 781 or higher (780 or higher in Chinese); CEEB SAT II score of 700 or higher in Hebrew only. No exemptions granted for CEEB SAT II scores in Japanese or Korean.
2. AP score of 4 or 5 in French, German, Italian, Latin or Spanish; AP score of 5 in Chinese.
3. Departmental examination.
4. Students with native English who study in a high school where the language of instruction is not English (e.g., French, for alumnae of the Lycée Français).
5. For international students for whom English was not the primary language of instruction in high school, satisfactory completion of ENGL BC1201 First-Year English: Reinventing Literary History or ENGL BC1204 First-Year English: Reinventing Literary History (Workshop) or one satisfactory semester at Barnard.

Placement
1. Re-centered CEEB SAT II score of 680–780, fourth semester; 570–679, third semester; 400–569, second semester; below 400, first semester, for German.
2. Re-centered CEEB SAT II score of 690–780, fourth semester; 570–689, third semester; 420–569, second semester; below 420, first semester, for French and Spanish.
3. For languages other than French, Spanish, and German, placement will be determined by departmentally administered examinations.
4. For transfer students: the course following the level of the last satisfactorily completed semester course; however, formal withdrawal and reenrollment in a more suitable course may be required for students who are judged by the department to be inappropriately placed and in need of additional preparation or review. In such a case, transfer credit for the previous course is rescinded to allow the student to receive credit for the Barnard/Columbia course of equivalent level. Taking the departmental placement exam is recommended.
5. By departmental examination, if there is no CEEB score or previous college transfer work.

Credit
1. Credit is given for courses satisfactorily completed in residence at Barnard or, in the case of a transfer, at her previous college.
2. No prior assurance of degree credit is given for summer or transfer work in foreign language courses. For work completed at other colleges, credit is granted with departmental approval, or by examination, or on completion of the next level at Barnard.
3. No credit is granted for work equivalent to a level already completed and credited.
4. Although credit for the first semester of an elementary language is not normally granted unless a more advanced course is completed, a student is granted one exception maximum to this rule on written request to the Registrar.

8. Literature
Requirement: One course in literature in any language, in the original or in translation; or in comparative literature.

Aim: To develop the skills needed for an informed and aesthetically rewarding reading of literary texts from various times, places, and traditions. Coursework will address the methods and theories by which readers produce meanings and interpretations, and will investigate the pertinence of material such as the authors’ biographies or their cultural contexts to literary analysis. Students will study rhetorical strategies employed in literature, becoming more adept at grasping the underlying assumptions and appeal of various forms of discourse.

Students who complete a course satisfying this requirement should be able to attain at least one of the following outcomes:

- Recognize a range of rhetorical strategies employed in literary texts and analyze their function
- Describe the contexts and distinctive features of at least one literary author, genre, or tradition

9. The Visual and Performing Arts
Requirement: One course in architecture, art history, studio art, graphic design, dance, music, film, or theatre.

Aim: To build an understanding and appreciation of creative processes and forms of artistic expression. Courses will provide insight into the ways art is used to explore and enrich the world and the human condition. The requirement will enable students to cultivate their skills, to develop an understanding of the ways various arts communicate and are discussed, and to consider works of art in their complex social and historical contexts.

Students who complete a course satisfying this requirement should be able to attain at least one of the following outcomes:

- Produce a work of art or a critical analysis of a work of art that demonstrates an understanding of formal characteristics including technique, style, medium or materials, and composition of design as applicable
- Situate the work in its social or historical context