



SENATE COMMITTEE ON CURRICULAR AFFAIRS
COURSE SUBMISSION AND CONSULTATION FORM

Principal Faculty Member(s) Proposing Course

Name	User ID	College	Department
JOHN WATERS	jrw8	Science (SC)	Not Available
JOEL WATERS	jrw5090	Health and Human Development (HH)	Not Available

Academic Home: Science (SC)

Type of Proposal: Add Change Drop

Course Designation

(BIOL 475N) Anatomy in Italy: Cadavers, Culture, and Science

Course Information

Cross-Listed Courses:

Prerequisites:

Consent of Instructors AND (BIOL 129 OR BIOL 141 OR BIOL 240W OR BIOL 472 OR KINES 202)

Corequisites:

IT 197

Concurrents:

Recommended Preparations:

Abbreviated Title: Anatomy in Italy
Discipline: General Education
Course Listing: Inter-Domain

Special categories for Undergraduate (001-499) courses

Foundations

- Writing/Speaking (GWS)
- Quantification (GQ)

Knowledge Domains

- Health & Wellness (GHW)
- Natural Sciences (GN)
- Arts (GA)
- Humanities (GH)
- Social and Behavioral Sciences (GS)

Additional Designations

- Bachelor of Arts
- International Cultures (IL)
- United States Cultures (US)
- Honors Course
- Common course number - x94, x95, x96, x97, x99
- Writing Across the Curriculum

First-Year Engagement Program

First-Year Seminar

Miscellaneous

Common Course

GE Learning Objectives

GenEd Learning Objective: Effective Communication

GenEd Learning Objective: Creative Thinking

GenEd Learning Objective: Crit & Analytical Think

GenEd Learning Objective: Global Learning

GenEd Learning Objective: Integrative Thinking

GenEd Learning Objective: Key Literacies

GenEd Learning Objective: Soc Resp & Ethic Reason

Bulletin Listing

Minimum Credits: 3

Maximum Credits: 3

Repeatable: NO

Department with Biology (UPSC_BIOL)

**Curricular
Responsibility:**

Effective Semester: Upon Approval

Travel Component: YES

**Description Of
Travel Component:** During spring break of this spring semester course, students will travel with the instructors to Italy and study in Florence, Bologna, and Rome. While in Italy, students will compare and contrast anatomical waxes to modern representations, analyze the anatomy of Michelangelo, da Vinci, and other artists, and discuss the historic circumstances that gave rise to, supported, and sometimes hindered the development of anatomy as a science.

Course Outline

A brief outline or overview of the course content:

This course will explore the origins of human anatomy as a modern science in the context of renaissance-era Italy, especially its culture, art, and history. During the in-class portion of the course, students will participate in discussions of science, history, and art, prepare and lead presentations on assigned topics, and perform human cadaver studies. During spring break, students will travel with the instructors to Italy and study in Florence, Bologna, and Rome. While in Italy, students will compare and contrast anatomical waxes to modern representations, analyze the anatomy of Michelangelo, da Vinci, and other artists, and discuss the historic circumstances that gave rise to, supported, and sometimes hindered the development of anatomy as a science.

A listing of the major topics to be covered with an approximate length of time allotted for their discussion:

All classroom topics will be covered for one week each:

Classroom Topics:

Ancient and Renaissance Rome

Anatomy of Galen

Introduction to the Renaissance

Anatomy of Michelangelo

Anatomy of da Vinci

History and Geography of Florence

History of the Medici

Humanism

Anatomy of Vesalius

Anatomy of La Specola and the Capuchin Crypts

All abroad topics will be covered for one to two days each:

Topics Discussed While Abroad:

Anatomical Waxes of La Specola

Medical Education during the Renaissance

Anatomical Representations in Renaissance Art

The Interdependence of Science and Art

Anatomical Representations in Sacred Art

Medicine in Renaissance Rome

Course Description:

Anatomy is more than learning to name structures. Students will practice critical thinking and analytical skills, and develop key literacies while studying human cadavers and learning to predict a structure's function by observing its shape, texture, and tissues.

Students will practice critical and integrative thinking while discussing the historical circumstances that gave rise to, supported, and sometimes hindered the development of anatomy as a science by synthesizing original arguments (written and oral) that explore the evolution of anatomic science within the context of Italian history, politics, and culture. Students will also study the ethics of acquiring cadavers within contemporary and renaissance contexts, identify individual graphics and historical sculptures that demonstrate anatomic understanding, and discuss their origins and implications for renaissance-era society. Students will also develop their communication skills: presenting original posters, leading class discussions, writing term papers, and creating webcasts as part of a service project. During spring break, students will travel with the instructors to Italy and study: anatomic wax specimens born through collaborations between anatomists and artists; Michelangelo's hidden anatomy in the Sistine Chapel; and the history of medicine. As preparation for their study abroad experience, students must concurrently enroll in IT 197: Italian Language and Culture for Study Abroad.

The name(s) of the faculty member(s) responsible for the development of the course:

| Name: JOEL WATERS (jrw5090)

Title:

Phone:

Address:

Campus: UP

City:

Fax:

| Name: JOHN WATERS (jrw8)

Title:

Phone:

Address:

Campus: UP

City:

Fax:

Course Justification

Instructional, Educational, and Course Objectives:

This section should define what the student is expected to learn and what skills the student will develop.

Anatomy is more than simply looking at something and learning its name. An anatomy student explores the form and relationships of structures by not only observing them visually, but by also touching, pulling, and pressing on the structures. Students in this course will integrate their anatomy experiences with other concepts, such as Italian history, art, politics, and culture, for a thorough understanding of how science and the humanities influence one another.

By the end of this course, students will be able to:

- 1) compare and contrast the accuracy of artistic and educational anatomical works with cadaver specimens;
- 2) describe the function of the tissues and organs you observe and how their spatial arrangement in the body helps make their function possible;
- 3) identify individual graphics and sculptures that demonstrate an understanding of human anatomy, and discuss their origins and implications for renaissance-era society;
- 4) create a timeline that describes the evolution of anatomy as a science within the context of Italian history, politics, and culture;
- 5) summarize and discuss professional articles and other primary source material;
- 6) create presentations to inform both professional and lay audiences.

Evaluation Methods:

Include a statement that explains how the achievement of the educational objective identified above will be assessed. The procedures for determining students' grades should be specifically identified.

Course grades will be based on the quizzes and assignments detailed below. Participation points will also be awarded based on students' effort and attitude in class.

Weekly Quizzes 120 pts. (12 quizzes at 10 pts. each)
In-class presentation 100 pts.
Mid-course Paper 200 pts.
Presentation in Italy 100 pts.
Webcasts 130 pts.
Poster presentation 200 pts.
Participation 150 pts.
Total 1000 pts.

Relationship/Linkage of Course to Other Courses:

This statement should relate the course to existing or proposed new courses. It should provide a rationale for the level of instruction, for any prerequisites that may be specified, or for the course's role as a prerequisite for other courses.

This course builds upon the foundational anatomy concepts covered in the 100 and 200 level prerequisites listed above, as well as the anatomy that is naturally integrated into an upper level physiology course like Biol. 472. By studying, discussing, and analyzing primary literature sources in the sciences and humanities, writing a research paper, presenting a poster, and preparing anatomical podcasts based on their classroom and study abroad experiences, students will synthesize anatomic concepts with the history, art, and culture of Italy, the birthplace of modern anatomic science.

The co-requisite course, IT 197, is an introductory Italian course that introduces students to Italian culture, language and customs, as well as teaching practical skills for traveling in Italy. IT 197 has no prerequisites and serves the unique population of students with imminent plans to study abroad in Italy, regardless of major.

Relationship of Course to Major, Option, Minor, or General Education:

This statement should explain how the course will contribute to the major, option, or minor and indicate how it may function as a service course for other departments.

As the course title implies, the curriculum itself will be highly multidisciplinary. The class will integrate science and history, as they discuss the historical circumstances that gave rise to, supported, and sometimes hindered the development of anatomy as a science. The focus of the classroom presentations will alternate between anatomic science and historical inquiry. Students will study the ethics of acquiring cadavers within contemporary and renaissance contexts, identify individual graphics and historical sculptures that demonstrate an understanding of human anatomy, and discuss their origins and implications for renaissance-era society. In written and oral assignments, students will synthesize original arguments that explore the evolution of anatomy as a science against the backdrop of Italian history, politics, and culture. During spring break, students will travel with the instructors to Italy and study (among other subjects) two hundred year-old anatomic wax specimens born of collaboration between anatomists and artists, Michelangelo's hidden anatomy in the Sistine Chapel, and the evolution of medicine from the middle ages to the modern era.

A description of any special facilities:

During the spring semester, students will meet regularly in the Biology Department's human cadaver teaching laboratory (610 Mueller Lab) to study anatomic form and function, and subsequently make comparisons to other media (i.e. paintings, drawings, wax sculptures) and evaluate the scientific accuracy of representations of the human body. The Biology cadaver laboratory is equipped with five downdraft dissection tables, adjustable lighting, and typically houses four cadavers at a time.

Frequency of Offering and Enrollment:

As a study abroad course, we are limited by the number of students we can take to Italy. We plan to enroll twenty students, primarily from the Eberly College of Science and the College of Health and Human Development in these courses. During consultations with the Director of Biology Undergraduate Advising and the Director of the Eberly College of Science's (ECoS) Office of Science Engagement, we were advised to offer the Biology course during spring semester so that its study abroad component could take place over spring break. This was preferable to fall semester when students usually have family commitments over the Thanksgiving break, or summer sessions which would require students to pay summer tuition. Furthermore, according to the Office of Global Programs, students overwhelmingly prefer to study abroad during the spring versus the fall semester.

Alignment with General Education Objectives

- EFFECTIVE COMMUNICATION** – the ability to exchange information and ideas in oral, written, and visual form in ways that allow for informed and persuasive discourse that builds trust and respect among those engaged in that exchange, and helps create environments where creative ideas and problem-solving flourish.
- KEY LITERACIES** – the ability to identify, interpret, create, communicate and compute using materials in a variety of media and contexts. Literacy acquired in multiple areas, such as textual, quantitative, information/technology, health, intercultural, historical, aesthetic, linguistic (world languages), and scientific, enables individuals to achieve their goals, to develop their knowledge and potential, to lead healthy and productive lives, and to participate fully in their community and wider society.
- CRITICAL AND ANALYTICAL THINKING** – the habit of mind characterized by comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating a conclusion. It is the intellectually disciplined process of conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action.
- INTEGRATIVE THINKING** – the ability to synthesize knowledge across multiple domains, modes of inquiry, historical periods, and perspectives, as well as the ability to identify linkages between existing knowledge and new information. Individuals who engage in integrative thinking are able to transfer knowledge within and beyond their current contexts.
- CREATIVE THINKING** – the capacity to synthesize existing ideas, images, or expertise in original ways and the experience of performing, making, thinking, or acting in an imaginative way that may be characterized by innovation, divergent thinking, and intellectual risk taking.
- GLOBAL LEARNING** – the intellectually disciplined abilities to analyze similarities and differences among cultures; evaluate natural, physical, social, cultural, historical, and economic legacies and hierarchies; and engage as community members and leaders who will continue to deal with the intricacies of an ever-changing world. Individuals should acquire the ability to analyze power; identify and critique interdependent global, regional, and local cultures and systems; and evaluate the implications for people's lives.
- SOCIAL RESPONSIBILITY AND ETHICAL REASONING** – the ability to assess one's own values within the social context of problems, recognize ethical issues in a variety of settings, describe how different perspectives might be applied to ethical dilemmas, and consider the ramifications of alternative actions. Individuals should acquire the self-knowledge and leadership skills needed to play a role in creating and maintaining healthy, civil, safe, and thriving communities.

What component(s) of the course will help students achieve the General Education Learning Objectives covered in the course? Provide evidence that students in the course have adequate opportunities to achieve the identified learning objectives.

Students will be required to synthesize and integrate information across both scientific and historical domains. During classroom discussion and mini-laboratory sessions, students will study the scientific foundations of anatomy during discussions of primary literature and guided dissection experiences. By studying the history of anatomy as a science, students will investigate the cultural and political contexts that led to our current understanding of the human body. Events, personalities, and intellectual movements during the Renaissance were crucial in shaping our modern perspective of ourselves - of both our internal structure and function, and our external body image.

The class will harness Italy's rich history to explore how the modern fields of anatomy and physiology evolved from the Italian renaissance, instilling in students an appreciation of how developments centuries ago and an ocean away still influence our modern understanding of human biology. Students will learn how the Italian renaissance played a central role in the way we perceive and understand the human body today.

How will students be assessed to determine their attainment of the Learning Objective(s) of General Education covered in this course? This assessment must be included as a portion of the student's overall performance in this course.

Integrative thinking and global learning will be assessed within each of the following assignments.

Mid-Course Paper: For this essay, students will choose one Italian work (or a related group of Italian works) to analyze, such as a painting, fresco, sculpture, model, etc. This piece/s could either be something discussed in class, or another work that has been approved by the course instructors. Students place this work in its cultural context. What people and/or forces produced this work? What impact did it have on contemporary observers, and what is its modern legacy? Students will utilize factors such as Italian history, politics, and intellectual and artistic movements to describe this work in its context. Students will also compare and contrast the anatomy demonstrated by the chosen work to its modern portrayal as seen in the anatomical atlas or Virtual Dissector. What attributes do the two anatomical depictions share? Where do they differ? Considering the Italian piece's historic and cultural context, what accounts for these similarities and differences? Students' papers will reference and properly cite at least 5 sources, at least 2 of which will be written by a contemporary or near-contemporary of their chosen work's period (e.g. primary sources).

Presentations in Italy: While we are in Italy, we will spend time studying the anatomical waxes from the 17th, 18th, and 19th centuries on display in La Specola, which is part of the Florence natural history museum. While taking photographs in the museum is not allowed, students can bring their laptop computers, and then use VH Dissector to create a digital image and make notes on one or more of the anatomical waxes. Later that day, we will meet together and students will present and discuss the anatomical wax(es) you studied.

Webcast: Based on class discussions while we are in Italy, students will create a 2-3 minute webcast that explains the anatomical wax(es) they studied. The webcast will be pitched to a lay audience, avoiding the use of jargon or other highly-technical terms. The objective is to educate the general public about the anatomical wax(es). These webcasts will be posted to a website and available for download by La Specola visitors.

Poster Assignment: Students will work in small groups to create scholarly posters which summarize topics that integrate both the classroom and study abroad portions of the course. Students will choose a topic of interest that is visually appealing, and addresses the interaction between anatomy (or physiology/medicine) as a science with the history, culture, art, and/or politics of Italy. They will integrate what was learned from the assigned readings, course discussions, and written assignments from the spring semester with the models, art, and historic sites we studied while abroad. Students will be required to use pictures they took while in Italy. The poster will be a visual presentation of a topic they have studied. All poster topics must be approved ahead of time by the instructors. The posters will be presented at a public poster session on the last day of class.

General Education Domain Criteria

General Education Designation: Inter-Domain

GH Criteria

- Explain the methods of inquiry in humanities fields and describe how the contributions of these fields complement inquiry in other areas
- Demonstrate competence in critical thinking about topics and texts in the humanities through clear and well-reasoned responses
- Critically evaluate texts in the humanities— whether verbal, visual, or digital— and identify and explain moral or ethical dimensions within the disciplines of the humanities
- Demonstrate knowledge of major cultural currents, issues, and developments through time, including evidence of exposure to unfamiliar material that challenges their curiosity and stretches their intellectual range
- Become familiar with groups, individuals, ideas, or events that have influenced the experiences and values of different communities

What components of the course will help students achieve the domain criteria selected above?

As described earlier, the mid-course paper will require students to demonstrate competence in critical thinking and demonstrate knowledge of major cultural currents, issues, and developments through time, by choosing one Italian work (or a related group of Italian works) to analyze, such as a painting, fresco, sculpture, model, etc. This piece/s could either be something discussed in class, or another work that has been approved by the course instructors. Students place this work in its cultural context. What people and/or forces produced this work? What impact did it have on contemporary observers, and what is its modern legacy? Students will utilize factors such as Italian history, politics, and intellectual and artistic movements to describe this work in its context. Students will also compare and contrast the anatomy demonstrated by the chosen work to its modern portrayal as seen in the anatomical atlas or Virtual Dissector. What attributes do the two anatomical depictions share? Where do they differ? Considering the Italian piece's historic and cultural context, what accounts for these similarities and differences? Students' papers will reference and properly cite at least 5 sources, at least 2 of which will be written by a contemporary or near-contemporary of their chosen work's period (e.g. primary sources).

Students will further evaluate texts in the humanities by giving weekly presentations on both anatomy and Italian history. Each group will be assigned anatomical and historic topics, all of which are listed in the attached syllabus. Groups will be assigned to present on specific days. Each group will prepare and present additional readings, and explain the information and their interpretation of the texts to the class.

GN Criteria

- Explain the methods of inquiry in the natural science fields and describe how the contributions of these fields complement inquiry in other areas**
- Construct evidence-based explanations of natural phenomena**
- Demonstrate informed understandings of scientific claims and their applications**
- Evaluate the quality of the data, methods, and inferences used to generate scientific knowledge**
- Identify societal or philosophical implications of discoveries in the natural sciences, as well as their potential to address contemporary problems**

What components of the course will help students achieve the domain criteria selected above?

The anatomy readings assigned as part of the weekly presentations mentioned above (and listed in the syllabus) will be complemented with study in the cadaver laboratory and analyses of anatomic representations in Italy, such as sculptures and paintings. Students will have the opportunity to compare and contrast contemporary applications of the scientific method in human biology with both Classical and Renaissance perspectives (i.e. Humanism, Realism, Neoplatonism) on the same subject. When evaluating the quality of past medical texts and other anatomic representations, students will explain how historical, societal, and philosophical circumstances gave rise to, supported, and sometimes hindered the development of anatomical understanding. Students will also study how the evolution of a more scientific understanding of human anatomy changed medicine and improved human health.

Integrative Studies

Explain how the intellectual frameworks And methodologies of the two Knowledge Domains will be explicitly addressed in the course and practiced by the students.

The classroom lectures and presentations will alternate between anatomic science and historical inquiry (see attached syllabus), while the students will be required to chart the historical development of anatomy and physiology in Renaissance Italy by considering the societal, economic, cultural, and political context that impacted the nascent sciences. Since the course is at its core - and from its inception - interdisciplinary, the curriculum necessitates integrative thinking. Scientific advances and setbacks will be considered as products of their own time, helping students develop a sense of historical empathy.

The course includes a capstone poster assignment that integrates both knowledge domains. Students will work in small groups to create scholarly posters which summarize topics that integrate both the classroom and study abroad portions of the course. Students will choose a topic of interest that is visually appealing, and addresses the interaction between anatomy (or physiology/medicine) as a science with the history, culture, art, and/or politics of Italy. They will integrate what was learned from the assigned readings, course discussions, and written assignments from the spring semester with the models, art, and historic sites we studied while abroad. Students will be required to use pictures they took while in Italy. The poster will be a visual presentation of a topic they have studied. All poster topics must be approved ahead of time by the instructors. The posters will be presented at a public poster session on the last day of class.

Demonstrate that each Of the two domains will receive approximately equal attention, providing evidence from course topics, assignments, or other course components, and that students will integrate material from both domains.

Both the domains of Humanities and Natural Science will receive equal attention by alternating focus of the classroom lectures and presentations between anatomic science and historical inquiry (see attached syllabus). Students will then be required to integrate both domains by completing course assignments such as the Term Paper and Poster Assignment (please see descriptions in attached syllabus).

Briefly explain the staffing plan. Given that each Inter-Domain course is approved for two Knowledge Domains, it will be taught by an instructor (or instructional team) with appropriate expertise in both domains.

Each of the instructors have their academic background in one of the two Knowledge Domains: John Waters (Ph.D. Biology) brings 24 years experience teaching anatomy and physiology in the Biology Department at Penn State, while Joel Waters (M.A. History) lends a humanities perspective by integrating the history and art of renaissance-era Italy into the course curriculum.

Describe the assessments that will be used to determine students' ability to apply integrative thinking.

As described earlier, the Mid-Course Paper will ask students to choose one Italian work (or a related group of Italian works) to analyze, such as a painting, fresco, sculpture, model, etc. This piece/s could either be something discussed in class, or another work that has been approved by the course instructors. Students will place this work in its cultural context. What people and/or forces produced this work? What impact did it have on contemporary observers, and what is its modern legacy? Students will utilize factors such as Italian history, politics, and intellectual and artistic movements to describe this work in its context. Students will also compare and contrast the anatomy demonstrated by the chosen work to its modern portrayal as seen in the anatomical atlas or Virtual Dissector. What attributes do the two anatomical depictions share? Where do they differ? Considering the Italian piece's historic and cultural context, what accounts for these similarities and differences? Students' papers will reference and properly cite at least 5 sources, at least 2 of which will be written by a contemporary or near-contemporary of their chosen work's period (e.g. primary sources).

Students' Presentations in Italy will stem from their study of the the anatomical waxes from the 17th, 18th, and 19th centuries on display in La Specola, which is part of the Florence natural history museum. While taking photographs in the museum is not allowed, students can bring their laptop computers, and then use VH Dissector to create a digital image and make notes on one or

more of the anatomical waxes. Later that day, we will meet together and students will present and discuss the anatomical wax(es) they studied.

Based on their time at La Specola and class discussions while we are in Italy, students will create a 2-3 minute Webcast that explains the anatomical wax(es) they studied. The webcast will be pitched to a lay audience, avoiding the use of jargon or other highly-technical terms. The objective is to educate the general public about the anatomical wax(es). These webcasts will be posted to a website and available for download by La Specola visitors.

For the final assignment, students will work in small groups to create scholarly posters which summarize topics that integrate both the classroom and study abroad portions of the course. Students will choose a topic of interest that is visually appealing, and addresses the interaction between anatomy (or physiology/medicine) as a science with the history, culture, art, and/or politics of Italy. They will integrate what was learned from the assigned readings, course discussions, and written assignments from the spring semester with the models, art, and historic sites we studied while abroad. Students will be required to use pictures they took while in Italy. The poster will be a visual presentation of a topic they have studied. All poster topics must be approved ahead of time by the instructors. The posters will be presented at a public poster session on the last day of class.

Campuses That Have Offered () Over The Past 4 Years

semester	AB	AL	BK	BR	BW	CR	DS	ER	FE	GA	GV	HB	HN	HY	LV	MA	NK	PC	SH	SL	UP	WB	WC	WS	XC	XP	XS	YK
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BIOL 475N: Anatomy in Italy: Cadavers, Culture, and Science (3 credits)

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Office hours to be announced and by appointment

Course Prerequisite:

(BIOL 129 or BIOL 141 or BIOL 240 or BIOL 472 or KINES 202) and consent of instructor

Required Texts and Materials

VH Dissector

Anatomy E-book (TBD)

Rick Steve's Italy 2018

Additional journal articles will also be assigned (see tentative list in schedule below)

Course Description

This course will explore the origins of human anatomy as a modern science in the context of renaissance-era Italy, especially its culture, art, and history. During the in-class portion of the course, students will participate in discussions of science, history, and art, prepare and lead presentations on assigned topics, and perform human cadaver studies. During spring break, students will travel with the instructors to Italy and study in Florence, Bologna, and Rome. While in Italy, students will compare and contrast anatomical waxes to modern representations, analyze the anatomy of Michelangelo, da Vinci, and other artists, and discuss the historic circumstances that gave rise to, supported, and sometimes hindered the development of anatomy as a science.

Objectives

Anatomy is more than simply looking at something and learning its name. An anatomy student explores the form and relationships of structures by not only observing them visually, but by also touching, pulling, and pressing on the structures. Students in this course will integrate their anatomy experiences with other concepts, such as Italian history, art, politics, and culture, for a thorough understanding of how science and the humanities influence one another.

By the end of this course, you should be able to:

- compare and contrast the accuracy of artistic and educational anatomical works with cadaver specimens;
- describe the function of the tissues and organs you observe and how their spatial arrangement in the body helps make their function possible;
- identify individual graphics and sculptures that demonstrate an understanding of human anatomy, and discuss their origins and implications for renaissance-era society;
- create a timeline that describes the evolution of anatomy as a science within the context of Italian history, politics, and culture;
- summarize and discuss professional articles and primary source material;
- create presentations to inform both professional and lay audiences.

General Education Learning Objectives

This course focuses on two of the General Education Learning Objectives: Integrative Thinking and Global Learning

- Integrative Thinking – The ability to synthesize knowledge across multiple domains, modes of inquiry, historical periods, and perspectives, as well as the ability to identify linkages between existing knowledge and new information. Individuals who engage in integrative thinking are able to transfer knowledge within and beyond their current contexts.
- Global Learning – The intellectually disciplined abilities to analyze similarities and differences among cultures; evaluate natural, physical, social, cultural, historical, and economic legacies and hierarchies; and engage as community members and leaders who will continue to deal with the intricacies of an ever-changing world. Individuals should acquire the ability to analyze power; identify and critique interdependent global, regional, and local cultures and systems; and evaluate the implications for people's lives.

Grading

Your course grade will be based on the quizzes and assignments detailed below. Participation points will also be awarded based on your effort and attitude in class. Please read the attendance and academic integrity policies as well, as these can also affect your final course grade.

Weekly Quizzes	120 pts. (12 quizzes at 10 pts. each)
In-class Presentation	100 pts.
Term Paper	200 pts.
Presentation in Italy	100 pts.
Webcasts	130 pts.
Poster Presentation	200 pts.
<u>Participation</u>	<u>150 pts.</u>
Total	1000 pts.

Grades will be assigned based on the percentage of the total course points you earn. The cut-offs for each grade are: A 92%; A- 90%; B+ 88%; B 82%; B- 80%; C+ 78%; C 70%; D 60%; F <60%.

Assignments

Weekly Quizzes: Beginning with the second class, there will be a quiz most weeks on the readings assigned for that day, on the previous meeting's Italian survival phrases, as well as on material from any previous lecture, reading assignment, or activity. Each quiz will be worth 10 pts. Make-up quizzes will only be administered if your absence is excused by the instructors.

In-Class Presentation: Throughout the semester, small groups of students will give presentations on both anatomy and Italian history. Each group will be assigned anatomical and historic topics, all of which are listed in the course schedule below. Groups will be assigned to present on specific days. On your group's assigned day, you will all prepare and present additional readings, and explain the information and your interpretation of the texts to the class. Each group member must participate in the presentation, which will last approximately 20 minutes and include both graphics and a handout to share with your classmates.

Term Paper: This writing assignment will be due the meeting of week 13, and should be 4-6 pages (double spaced) in length. For your essay, you will choose one Italian work (or a related group of Italian works) to analyze, such as a painting, fresco, sculpture, model, etc. This piece/s could either be something that we discussed in class, or another work that has been approved by the course instructors. You will then place this work in its cultural context. What people and/or forces produced this work?

What impact did it have on contemporary observers, and what is its modern legacy? You should utilize factors such as Italian history, politics, and intellectual and artistic movements to describe this work in its context. You will then compare and contrast the anatomy demonstrated by your chosen work to its modern portrayal as seen in the anatomical atlas or Virtual Dissector. What attributes do the two anatomical depictions share? Where do they differ? Considering the Italian piece's historic and cultural context, what accounts for these similarities and differences? Your paper should reference and properly cite at least 5 sources, at least 2 of which should be written by a contemporary or near-contemporary of your chosen work's period (e.g. primary sources).

Presentations in Italy: While we are in Italy, we will spend time studying the anatomical waxes on display in La Specola, which is part of the Florence natural history museum. While taking photographs in the museum is not allowed, you can bring your laptop computer. You will then use VH Dissector to create a digital image and make notes on one or more of the anatomical waxes. Later that day, we will meet together and you will present and discuss the anatomical wax(es) you studied.

Webcast: Based on classroom discussion with your classmates, you will create a 2-3 minute webcast that explains the anatomical wax(es) you studied. The webcast should be pitched to a lay audience, so avoid the use of jargon or other highly-technical terms. Your goal is to educate the general public about the anatomical wax(es) you studied. These webcasts will be posted to a website and available for download by La Specola visitors.

Poster Assignment: You will work in a small group to create a scholarly poster which summarizes a topic that integrates both the classroom and study abroad portions of the course. Choose a topic that interests you, is visually appealing, and addresses the interaction between anatomy (or physiology/medicine) as a science with the history, culture, art, and/or politics of Italy. You should integrate what you learned from the assigned readings, course discussions, and written assignments from the spring semester with the models, art, and historic sites we studied while abroad. Be sure to take a lot of pictures while we are in Italy! Your poster will be a visual presentation of a topic you have studied. All poster topics must be approved ahead of time by the instructors. The posters will be presented at a public poster session on the last day of class. Additional requirements and guidelines will be provided in class.

Participation: These points will be awarded for active participation over the entire course, following all course policies, being respectful of the students, faculty, staff, hosts, and specimens in the course, caring for all course materials, and fulfilling the conditions of the Conduct Standards Agreement. These points are **not** awarded simply for attendance. At the end of the semester, the instructors will assign points based on excellent participation (135-150 points), good participation (120-134 points), fair participation (105-119 points), or poor participation (0-104 points).

Attendance

Attendance is mandatory. In the event of illness or other circumstances that prevent you from attending any part of the course, please speak with one of the instructors immediately. If your absence is excused, you will be allowed to make up a missed quiz or assignment. However, since the education abroad portion of the course cannot be "made up", it may be necessary for you to drop the course if are unable to participate in that trip for any reason, even if the reason is beyond your control. *Speak with your instructor immediately about any attendance issues.*

Late Assignments

In order to complete this course on time, you will need to keep up with all of the assignments. Speak with the instructor immediately if there is some reason that you cannot complete your work on time.

Unless you have permission from the instructor to turn something in late, a late assignment will be penalized by deducting 20% of the maximum points possible for each day it is late.

Academic Integrity

Academic dishonesty is not limited to simply cheating on an exam or assignment. The following is quoted directly from the "PSU Faculty Senate Policies for Students" regarding academic integrity and academic dishonesty: "Academic integrity is the pursuit of scholarly activity free from fraud and deception and is an educational objective of this institution. Academic dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating of information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students." All University and Eberly College of Science policies regarding academic integrity/academic dishonesty apply to this course and the students enrolled in this course. Refer to the following URL for further details on the academic integrity policies of the Eberly College of Science: <http://www.science.psu.edu/academic/Integrity/index.html>.

Each student in this course is expected to work entirely on her/his own while taking any test or writing any paper. You are allowed to work together to create your presentations, webcasts, and poster, but all other work is to be completed individually and without the assistance of others. You are expected to abide by all University and Eberly College of Science policies regarding academic integrity and academic dishonesty. Academic dishonesty can result in the assignment of an "F" by the course instructors or an "XF" by Judicial Affairs as the final grade for the student.

Spring Schedule (tentative)

WEEK	IN-CLASS PORTION
1	<p>Course Description General Relationship of Anatomy, History, and Art Structure of the Course UP portion Some science Some humanities Italy portion Preparing to Travel PSU/course policies Italian Language (survival phrases) Logistics Readings/Assignments for rest of semester</p>
2	<p>Ancient and Renaissance Rome <i>Class:</i> Grant, <i>A Guide to the Ancient World</i>, pp. 541-545 (Brief history of the Roman Republic and Empire) Gwynn, <i>The Roman Republic</i>, pp.92-99 (Arts and architecture of Rome), 116-132 (Rome's legacy, mentions Florence and the renaissance) Campbell, <i>The Oxford Dictionary of the Renaissance</i>, "Rome," "Papacy," "Nicholas V," "Sixtus IV," "Julius II," "Leo X," "Clement VII," tinyurl.com/lulke3p</p>

	<p>Partridge, <i>The Renaissance in Rome</i>, pp. 9-41 (Introduction to the renaissance papacy, brief history of renaissance Rome)</p> <p><i>Presenters:</i></p> <p>Partridge, <i>The Renaissance in Rome</i>, pp. 120-131 (Michelangelo’s ceiling of the Sistine Chapel), pp. 133-136 (Michelangelo’s Last Judgment in the Sistine Chapel, mentions his anatomy)</p> <p>Platina, “The Restoration of Rome,” <i>The Portable Renaissance Reader</i>, pp. 385-387</p>
<p>3</p>	<p>Anatomy of Galen</p> <p><i>Class:</i></p> <p>Ghosh SK. <i>Human cadaveric dissection: a historical account from ancient Greece to the modern era</i>, Anat Cell Biol 2015;48: pp. 153-169</p> <p>Todman D. <i>Galen (129–199)</i>, J Neurol (2007) 254: pp.975–976</p> <p>Ajita R. <i>Galen and His Contribution to Anatomy: A Review</i>, Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 26, pp. 4509-4516</p> <p>Boylan M. <i>Galen: On Blood, the Pulse, and the Arteries</i>, Journal of the History of Biology, Vol. 40, No. 2 (Jun., 2007), pp. 207-230</p> <p><i>Presenters:</i></p> <p>Goss CM. <i>On the Anatomy of Muscles for Beginners by Galen of Pergamon</i>, The Anatomical Record Volume 145, Issue 4, pp. 477–501, April 1963</p>
<p>4</p>	<p>Introduction to the Renaissance</p> <p><i>Class:</i></p> <p>Campbell, <i>The Oxford Dictionary of the Renaissance</i>, “Renaissance,” “Anatomy,” tinyurl.com/lulke3p</p> <p>Hay, <i>The Italian Renaissance in its Historical Background</i>, pp. 1-27 (Defining ‘the renaissance’)</p> <p><i>Presenters:</i></p> <p>Vasari, “Lives of the Most Famous Artists,” <i>The Italian Renaissance Reader</i>, pp. 382-393</p> <p>Guicciardini, “The Balance of Power in Italy,” <i>The Portable Renaissance Reader</i>, pp. 279-284</p>

5	<p>Anatomy of Michelangelo <i>Class:</i> Strauss RM, Marzo-Ortega H. <i>Michelangelo and medicine</i>, J R Soc Med 2002; 95: pp. 514–515</p> <p>Meshberger FL. <i>An Interpretation of Michelangelo's Creation of Adam Based on Neuroanatomy</i>, JAMA 1990 264 (14) pp. 1837-1841</p> <p><i>Presenters:</i> Suk I and Tamargo RJ. <i>Concealed Neuroanatomy in Michelangelo's Separation of Light From Darkness in the Sistine Chapel</i>, Neurosurgery 66: pp. 851-861, 2010</p> <p>Reis LO, Zani EL, Alonso JC, Simões FA, Rejowski RF, and Barreto G. <i>The interpretation of the figure of the prophet Jonah by Michelangelo on the ceiling of the Sistine chapel: anatomical urological vision</i>, Int Braz J Urol. 2012; 38: pp. 317-23</p>
6	<p>Anatomy of da Vinci <i>Class:</i> Petaros A, Culina T, Suran A, krobobja A. <i>Anatomical knowledge among medieval folk artists: osteological interpretation of two Dance of Death motifs</i>, J. Anat. (2013) 223, pp. 105-111</p> <p>Gurunluoglu R, Gurunluoglu A, Williams SA, Cavdar S. <i>The history and illustration of anatomy in the Middle Ages</i>, J. of Medical Biology 21 (4) pp. 219-229</p> <p><i>Presenters:</i> Jastifer JR and Toledo-Pereyra LH. <i>Leonardo da Vinci's Foot: Historical Evidence of Concept</i>, Journal of Investigative Surgery, 25, pp. 281–285, 2012</p> <p>Schultheiss D, Grunewald V, and Jonas U. <i>Urodynamics in the anatomical work of Leonardo da Vinci (1452-1519)</i>, World J Urol (1999) 17: pp. 137-143</p>
7	<p>History/Geography of Florence <i>Class:</i> Campbell, <i>The Oxford Dictionary of the Renaissance</i>, “Italy,” “Florence,” tinyurl.com/lulke3p</p> <p>Hibbert, <i>The House of Medici: Its Rise and Fall</i>, pp. 19-29 (15th-century geography and government of Florence)</p> <p><i>Presenters:</i> Ficino, “The Golden Age in Florence,” <i>The Portable Renaissance Reader</i>, pp. 79-80</p> <p>Dei, “The Prosperity of Florence,” <i>The Portable Renaissance Reader</i>, pp. 165-168</p>
8	<p>Itinerary Overview/Logistics of the Trip</p>
Spring Break	<p>Trip to Florence, Bologna, and Rome See “STUDY ABROAD PORTION” Below</p>

9	<p>Poster Preparation Orientation</p>
10	<p>History of the Medici <i>Class:</i> Campbell, <i>The Oxford Dictionary of the Renaissance</i>, “Medici Family,” “Medici, Cosimo I de,” “Medici, Lorenzo I de, Il Magnifico,” tinyurl.com/lulke3p</p> <p>Strathern, <i>The Medici: Godfathers of the Renaissance</i>, pp. 97-126 (The early renaissance in Florence, Cosimo de’ Medici)</p> <p><i>Presenters:</i> Hibbert, <i>The House of Medici: Its Rise and Fall</i>, pp. 164-176 (Lorenzo de Medici)</p> <p>Guicciardini, “A Portrait of Lorenzo De’Medici,” <i>The Portable Renaissance Reader</i>, pp. 267-278</p>
11	<p>Humanism - Led to classical glorification of the human body <i>Class:</i> Campbell, <i>The Oxford Dictionary of the Renaissance</i>, “Humanism,” tinyurl.com/lulke3p</p> <p>Mann, “The Origins of Humanism,” <i>The Cambridge Companion to Renaissance Humanism</i>, pp. 1-19</p> <p><i>Presenters:</i> Mirandola, “Oration on the Dignity of Man,” <i>The Portable Renaissance Reader</i>, pp. 180-183</p> <p>Alberti, “The Book of the Family,” <i>The Italian Renaissance Reader</i>, pp. 166-169 (More on the greatness of humanity), pp. 173-177 (Rationalizing why making money is not a sin)</p> <p>Grafton, “The New Science and Traditions of Humanism,” <i>The Cambridge Companion to Renaissance Humanism</i>, pp. 203-223</p>
12	<p>Anatomy of Vesalius <i>Class:</i> Smith SB. <i>From Ars to Scientia: The Revolution of Anatomic Illustration</i>, <i>Clinical Anatomy</i> 19: pp. 382–388 (2006)</p> <p>Ambrose CT. <i>Andreas Vesalius (1514-1564) - An Unfinished Life</i>, <i>Acta med-hist Adriat</i> 2014; 12(2); pp. 217-230</p> <p><i>Presenters:</i> Shotwell RA. <i>Animals, Pictures, and Skeletons: Andreas Vesalius’s Reinvention of the Public Anatomy</i>, <i>Journal of the History of Medicine and Allied Sciences</i>, Vol. 71, No. 1, pp. 1–18</p>
13	<p>La Specola and the Capuchin Crypts <i>Class:</i></p>

	<p>Marker, A. <i>The Anatomical Models of La Specola: Production, Uses, and Reception</i>, Nuncius 21 (2) 2006 pp. 295-321</p> <p>Riva A, Conti G, Solinas P, Loy F. <i>The evolution of anatomical illustration and wax modelling in Italy from the 16th to early 19th centuries</i>, J. Anat. (2010) 216, pp. 209–222</p> <p><i>Presenters:</i></p> <p>Frixion E. <i>Neura, nerves, nerve fibers, neurofibrils, microtubules: Multidimensional routes of pain, pleasure, and voluntary action in images across the ages</i>, Progress in Brain Research, 2013 Volume 203, pp. 115-160</p> <p>Geranmayeh F and Ashkan K. <i>Mind on Canvas: anatomy, signs and neurosurgery in art</i>, British Journal of Neurosurgery, August 2008; 22(4): pp. 563 – 574</p> <p>Term Paper Due</p>
14	Poster Session Preparation
15	Poster Session
Finals Week	

DAY	STUDY ABROAD PORTION
1-Fri	Travel to Florence, Italy
2-Sat	<p>Arrive in Florence, Italy Brief Orientation Room assignment Safety Itinerary Review</p> <p>Orientation to Florence Brief Tour of Florence, including the Palazzo Rucellai</p>
3-Sun	<p>Anatomical Waxes of La Specola – part I <i>Assigned Reading:</i> Mayor, A. Hyatt. “Artists as Anatomists”. <i>The Metropolitan Museum of Art Bulletin</i> 22.6 (1964): pp. 201–210</p> <p>Ingham K. <i>Art and the theatre of mind and body: how contemporary arts practice is re-framing the anatomo-clinical theatre</i>, J. Anat. (2010) 216, pp. 251–263</p> <p>CY and Apuzzo MLJ. <i>The Genesis of Neurosurgery and the Evolution of the Neurosurgical Operative Environment: Part I - Prehistory to 2003</i>, Neurosurgery 52: pp. 3-19, 2003</p>

	<p><i>Morning</i> Study the anatomical waxes at La Specola, and use VH Dissector to create digital models of assigned waxes.</p> <p><i>Early Afternoon</i> Work in assigned groups to prepare a presentation of the anatomical waxes you studied.</p> <p><i>Late Afternoon/Early Evening</i> Share presentations that summarize the anatomical structures you observed along with their functions. Discuss the accuracy of the anatomical waxes compared to other specimens you've studied.</p>
4-Mon	<p>Medical Education during the Renaissance</p> <p><i>Assigned Reading:</i> Grendler, Paul F.. "The Universities of the Renaissance and Reformation". <i>Renaissance Quarterly</i> 57.1 (2004): pp. 1–42</p> <p>Ghosh SK. <i>Evolution of Illustrations in Anatomy: A Study from the Classical Period in Europe to Modern Times</i>, Anat Sci Educ 8: pp. 175–188. 2014</p> <p><i>Morning</i> Overview of renaissance medical education Take train to Bologna (~1 hour)</p> <p><i>Afternoon</i> Tour the Archiginnasio Dissection Theatre Study anatomical waxes in the Museum of Palazzo Poggi Compare and contrast renaissance and modern medical education, and the role of medicine in society Return to Florence</p>
5-Tues	<p>Anatomical Representations in Renaissance Art</p> <p><i>Assigned Reading:</i> Duffin, <i>History of Medicine</i>, chapters 2 & 3</p> <p>Condivi, "Michelangelo Buonarroti," <i>The Portable Renaissance Reader</i>, pp. 501-512</p> <p>Nesi G, Santgi R, Taddei GL. <i>Art and the teaching of pathological anatomy at the University of Florence since the nineteenth century</i>, Virchows Arch (2009) 455: pp. 15-19</p> <p><i>Late Morning</i> Visit historical hospitals i.e. Ospedale degli Innocenti Others(?)</p> <p><i>Afternoon</i> Study renaissance-era representations of human anatomy Medici Chapel (4 statues by Michelangelo)</p>

	<p>Accademia Gallery (Michelangelo's David) Bargello (Donatello's David)</p> <p>Compare/contrast how human anatomy is presented in different eras and political circumstances</p>
6-Wed	<p>Anatomical Waxes of La Specola – part II</p> <p><i>Morning</i> Study the anatomical waxes at La Specola, and use VH Dissector to create digital models of assigned waxes.</p> <p><i>Early Afternoon</i> Work in assigned groups to prepare a presentation of the anatomical waxes you studied.</p> <p><i>Late Afternoon/Early Evening</i> Share presentations that summarize the anatomical structures you observed along with their functions. Discuss the accuracy of the anatomical waxes compared to other specimens you've studied.</p>
7-Thur	<p>The Interdependence of Science and Art</p> <p><i>Morning</i> Discuss the history of the Uffizi Gallery. Visit the Uffizi Gallery Study paintings and sketches of Antonio del Pollaiuolo He and his brother Piero sought anatomical accuracy by dissecting corpses (i.e. Battle of the Nudes) Study paintings and sketches of other artists who studied anatomy...</p> <p><i>Afternoon</i> Visit Santo Spirito to see the crucifix Michelangelo sculpted in thanks for access to cadaver specimens. Other places we may visit Casa Buonarrotti - Michelangelo's anatomical sketches Science Museums Museo Galileo/History of Science Museum Science and Technology Foundation Farmacia Molteni Discuss Florence's role in the scientific revolution and the interdependence of art and science.</p>
8-Fri	<p>Anatomical Representations in Sacred Art</p> <p><i>Assigned Reading:</i> Quigley, <i>Skulls and Skeletons</i>, pp. 172-177</p> <p><i>Morning</i> Take train to Rome – about 2 hours, arrive ~9:00AM Tour the Capuchin Crypt, an ossuary housing the remains of over 3700 monks Visit the Spanish Steps and the Trevi Fountain on the way to Vatican City</p> <p><i>Afternoon</i></p>

	<p>Visit the Vatican Museums and the Sistine Chapel - bring binoculars to study “hidden anatomy” of the Sistine Chapel</p> <p>Visit St. Peter’s Basilica</p> <p>Check-in to hotel</p>
9-Sat	<p>Medicine in Rome</p> <p><i>Morning</i></p> <p>Discuss examples and the purpose of anatomical representations outside of science and medicine.</p> <p>Visit the National Historic Museum of the Healthcare Act</p> <p><i>Afternoon</i></p> <p>Compare and contrast medical care in the middle ages, renaissance, and the modern era</p> <p>Walking tour of Rome: Piazza Navona, the Pantheon, the Forum, and the Colosseum</p>
10-Sun	Travel Home