



MEDS 3025: Study abroad in the medical sciences (2 credits) In the Footsteps of Louis Pasteur, Science & Art in Paris

Program faculty

- Course director: David S. Askew, Ph.D., Dept. of Pathology & Laboratory Medicine (david.askew@uc.edu).
- Co-faculty: Roger Worrell, Ph.D., Dept. of Pharmacology & Systems Physiology (worrellrt@ucmail.uc.edu).

Course schedule

- Fall semester 2023 (in-class: Mondays, 6-7pm, MSB E-161). The classroom is located on E-level in the College of Medicine. Exit the Eden Avenue shuttle, cross the street (Eden Avenue) and go up the wide steps. Enter through glass doors into the CARE building. Cross the large atrium into the MSB (E-level). After the elevators, turn left and the classroom will be on the right.
- On-site in Paris: 12/09/2023 (departure) – 12/18/2023 (return)

Course Description

After the Académie des Sciences was founded by King Louis XIV in 1666, Paris became a major center for the medical sciences. To this day, French scientists (many of whom worked in Paris) continue to make contributions to scientific knowledge. Although science and art are often considered to be polarized opposites, they share the bond of striving to understand and describe our world. Louis Pasteur himself displayed considerable talent for painting, requiring skills in observation and creativity that many believe contributed to his success as a scientist. In this study-program, students will explore the contributions of pioneering French scientists to the development of contemporary medical science, and merge that experience with an appreciation of the outstanding artwork for which Paris is renowned.

Learning objectives

- Microbiology
 - Describe the contributions of Louis Pasteur to the concepts of molecular chirality, fermentation, sterilization, spontaneous generation, germ theory, public health, and vaccines.
 - List the 10 Nobel prize winners coming from the Pasteur Institute and the legacy of the International Pasteur Network.
 - Explain the evolution of germ theory and its impact on public health, surgery, and treatment.
 - Explain how advances in urban public health drove a major architectural renovation of Paris in the 19th century.
 - Explain how infections with *Yersinia pestis* (plague) impacted the perfume industry in France.
 - Explain why cholera and typhoid epidemics were major problems in 18th/19th century Paris and how this problem was solved.
- Medical biophysics
 - Describe the contributions of Pierre and Marie Curie to the chemistry and physics of radioactivity, which contributed to their Nobel Prize.
 - Describe the scandals that arose following the inappropriate incorporation of radioactive substances into consumer products, and how radiation was ultimately harnessed for the diagnosis and treatment of human disease.
- Technology
 - Describe some of the early advances that led to the development of precision in scientific instrumentation.
- Medicine and physiology
 - Describe some of the early surgical instruments used to treat human disease in the absence of anesthesia.
 - Describe the contributions of Claude Bernard to the understanding of human physiology.
- Pathologic anatomy
 - List some of the infectious and developmental pathologies that affect domestic and farm animals.
 - Describe the medical advances that arose from the use of animals in research during the 18th and 19th centuries.
 - Explain the contribution of Honoré Fragonard to the field of anatomy.
- Paris art and culture

- Explain what is meant by Hausmann architecture.
- Explain why Mona Lisa by Leonardo da Vinci (located in the Louvre in Paris) has attracted the interest of contemporary art historians, as well as neuroscientists.
- Describe the history and significance behind some of the major artistic venues in Paris: Eiffel Tower, L'Arc de Triomphe, Notre Dame Cathedral, Sacré Coeur, etc.
- Use simple words and phrases in the French language.
- Understand French social etiquette and customs.
- Explain why French croissants taste better than North American croissants!

Instructor qualifications

- Dr. Askew received his B.Sc. in microbiology and Ph.D. in pathology from the University of British Columbia, Canada. He was inspired to develop this program after doing a research sabbatical at the Pasteur Institute, named after Louis Pasteur, often referred to as the father of microbiology.
- Dr. Worrell received his B.S. in Chemical Biology at Rhodes College and his PhD. in Physiology & Biophysics from the University of Alabama Birmingham. His inspiration to join this program derives from Claude Bernard, the "father" of Physiology and Experimental Medicine who was a contemporary of Louis Pasteur. This program thus provides the opportunity to enrich the student experience by integrating scientific advances during the days of Bernard and Pasteur in Paris during the mid-late 1800's.

Prerequisites

Anyone interested in the medical sciences and the history of medicine/art, a minimum GPA of 2.0 (to be eligible for travel grants from UC International), and an interview with the course director.

Academic Accommodations

Disability accommodations: students should register with Accessibility Resources ([link to UC Accessibility Resources](#)) prior to the start of the semester.

Religious accommodations: Ohio law and the University's Student Religious Accommodations for Courses Policy 1.3.7 permits a student, upon request, to be absent for reasons of faith or religious or spiritual belief system or participate in organized activities conducted under the auspices of a religious denomination, church, or other religious or spiritual organization and/or to receive alternative accommodations with regard to examinations and other course requirements due to an absence permitted for the above-described reasons. Not later than fourteen days after the first day of instruction in the course, a student should provide the instructor with written notice of the specific dates for which the student requests alternative accommodations. For additional information about this policy, please contact the Executive Director of the Office of Equal Opportunity and Access at (513) 556-5503 or oeohelp@ucmail.uc.edu.

Grading

At the end of the semester students will all receive a temporary I (incomplete) grade until travel is completed. The final post-travel assignment is due at the end of the week following the return.

During the semester

- 20% Weekly assignments (late submissions allowed, subject to an automatic 25%/day penalty)
- 20% In-class presentations
- 10% Class engagement/attendance (10% penalty/each unexcused absence)
 - A (exceptionally engaged)
 - B (moderately engaged)
 - C (marginally engaged)

Travel to Paris

- 25% Engagement
 - A (exceptionally engaged). Clearly prepared to ask questions and engage the faculty and tour guides (don't be shy, they love their subjects). Continually focused on making the most of the experience.
 - B (moderately engaged). Prepared to ask questions and engage the guides on an occasional basis, but nonetheless attentive and focused on contributing to the group experience.
 - C (marginally engaged). Not prepared to be involved, inattentive during visits, or behavior detracts from the group experience.
- 25% Post-trip assignment (reflection)

Schedule

You will be challenged with weekly assignments and presentations, which are designed to prepare you for travel to Paris.

WEEK	DATE	ASSIGNMENTS
1	8-21	Welcome to Team Paris
2	8-28	Louis Pasteur & the golden age of microbiology
3	9-4	No class: Labor Day
4	9-11	Presentations: groups 1 & 2
5	9-18	Paris: a brief history
6	9-25	Presentations: groups 3 & 4
7	10-2	French cooking class
8	10-09	No class: Fall reading day
9	10-16	Presentations: groups 5 & 6
10	10-23	Claude Bernard and the birth of experimental medicine
11	10-30	Presentations: groups 7 & 8
12	11-6	Unraveling the mystery of Mona Lisa's smile: neurology at the intersection of science & art. Guest Lecture: Luca Marsili, M.D.
13	11-13	Presentations: groups 9 & 10
14	11-20	Coordination of individual itineraries
15	11-27	Final trip planning
	Paris	12/09 departure -12/18 return

Group presentations (10 groups of two): Student-researched presentations focusing on Paris landmarks, French scientists, French artists. Aim for a 15-20 minute presentation.

Flights:

DL 228Y 09DEC J CVGCDG 610P 815A 10DEC S

DL 97Y 18DEC M CDGDTW 1030A 155P

DL5248Y 18DEC M DTWCVG 350P 459P

We leave on a Saturday, Dec. 9th, arriving Sunday morning. After checking into the hotel (rooms won't be ready), we take a boat ride on the Seine to familiarize you with the city. Each of the following days are then anchored by a location that we visit as a group. This will leave time for you to develop an independent itinerary to explore Paris. A finalized list of programmatic events will be available in Fall.

Approximate cost

The program fee is usually in the range of \$3,000-\$4,000, minus a scholarship from UC International to each student accepted in the program. The amount of the scholarship varies year-to-year (usually ~\$400-600).

Scientific venues

- **MICROBIOLOGY:** Le Musée Pasteur
 - The Pasteur Institute, founded in 1887, is one of the leading research centers in infectious disease and microbiology, garnering 10 Nobel Prizes since its inception.
- **MEDICAL BIOPHYSICS:** L'Institut Curie
 - The Curie Institute is a leading research center that studies biophysics, cell biology and cancer. It houses the Curie Museum on the grounds of Marie Curie's laboratory.
- **PATHOLOGIC ANATOMY:** Le Musée de l'Ecole Nationale Vétérinaire d'Alfort
 - The museum of the National Veterinary School of Alfort was established in 1766 as a repository for comparative anatomy, pathology, and infectious disease.
- **MEDICAL SCIENCE:** Le Musée d'Histoire de la Médecine
 - This museum has an exceptional collection of surgical, diagnostic, and physiological instrumentation dating from the 18th century.
- **TECHNOLOGY:** Le Musée des Arts et Métiers
 - This museum founded in 1794 is a repository for the preservation of scientific instrumentation, engineering, and industrial design.

Artistic venues

- **THE ART & SCIENCE OF CHAMPAGNE PRODUCTION**

- Louis Pasteur is sometimes referred to as the “founding father of wine science”. Our program will include a visit to a champagne production facility in the town of Épernay, just North of Paris.
- THE ART & SCIENCE OF PERFUME PRODUCTION
 - Our program will include a visit the Musée du Parfum to learn about the long history of perfume production in Paris.
- INDEPENDENT ITINERARIES
 - One of the great joys of travel is independence. Students are challenged to create independent itineraries to explore the numerous artistic venues available in Paris.

“I’m interested, what are the next steps?”

- Send an email to the course director to indicate your interest in applying (david.askew@uc.edu).
- Keep an eye on the UC International website to see when applications open (usually in February). Upon completion of the online forms, you will be invited for a brief interview to discuss to the program.
<https://studyabroad.uc.edu/index.cfm?FuseAction=Programs.ViewProgramAngular&id=10390>
- Note: applying gets you in the cue for acceptance but doesn’t commit you to the program until all applications are reviewed. Keep in mind that we have more applicants than slots, so acceptance is not guaranteed since we strive to obtain a balance of academic programs, year, and gender.
- Once you have completed the application and received confirmation of acceptance, you will be given permission to enroll in MEDS 3025.
- If you do not have a passport, apply for one immediately.
- Make sure your covid vaccinations/boosters are current.