

Study Abroad Proposal

1. ESSAY:

When I made the decision to come to Caltech, I knew that I would get a world-class education the challenged me academically. However, I was also concerned that it would be difficult to develop personally. I felt that the small community might make it easy to be comfortable and not challenge myself socially, and I may not end up as independent as I wanted to be. I also felt that I was giving up the chance to be part of a more diverse community, and be part of clubs that I couldn't find in high school. Going abroad would give me the chance to be involved in clubs that are active and span more interests than here at Caltech. This includes having a Muslim community in the form of the Islamic Society of UCL, the Islamic Society of Edinburgh University, or the University of Melbourne Islamic Society. These Islamic societies would inherently be different than American Muslim Student Associations, and I want to experience that difference as well. At UCL I could also join the Art Society, where they offer weekly tutored life drawing sessions, regular gallery visits and studio sessions. Similar is the Art Society in Edinburgh. I could also be part of the Edinburgh University Athletics Club, and share my love for track and the pain of hard workouts with people halfway across the world. At Melbourne, I could even be at part of Chocolate Lover's Society or Tea Appreciation Society.

I am interested in studying abroad at either University College London (UCL), University of Edinburgh, or University of Melbourne. I want to study abroad to get the experience studying in a different university, making new friends from a diversity of backgrounds and experiences outside the Caltech bubble, and have the opportunity to take classes that Caltech does not offer in my option.

Additionally, I have traveled before with my family and even lived in Egypt for the year that I was in fourth grade. For a summer every couple years, my mom and I go to Cairo to visit family. While in Egypt, we often go to other cities like the beach city of Sharm el-Sheikh, the farming town of Ismalia, or the more rural Aswan, which is on the Nile, where everyone knows and greets each other. We have also gone to Paris, Barcelona, Amsterdam, and Munich. This past winter break, we went to Mecca and Madinah in Saudia Arabia for Umrah (a religious pilgrimage with less duties than a complete Hajj). Over time, this has granted me a mature and open personality that I believe makes me well suited to study abroad. I have seen how people around the world live differently and have quickly established in my mind that there is no one way of living, succeeding, having a family, or learning. But I realize that visiting a place is not enough to understand a way of life, and that studying abroad can help me expand upon my experiences travelling with family and gain a more complete and global perspective. I am aware of and have an appreciation for different cultures and how they come together in the United States, and am curious how the communities in the UK or Australia compare. I am also deeply connected to my own Egyptian heritage and Muslim identity as a result of these travels and my upbringing.

However, despite these travels, I have not had the opportunity to explore a new place on my own for an extended perios of time, rather than just being a tourist. Studying abroad would allow me to become more self-reliant, self-motivated, and spontaneous. Living and learning in a foreign country would let me gain a better understanding of the world that would translate to being better prepared to work with all types of people in a career or academic setting. Studying abroad would of course be a challenge in many respects-I would have to take on the responsibilities of getting to and from classes, planning trips and meals, reaching out to new people- and overcoming those challenges would cause me to gain confidence and become a better problem-solver.

From an academic perspective, studying abroad would let me take classes that would benefit me as a person that I am unable to take at Caltech. This includes humanities, like those in Middle Eastern and

Islamic Studies. Additionally, the course offerings abroad vary in a way that would allow me to explore biology that goes beyond the molecular-focused level here at Caltech.

2. PROGRAM FIT: Briefly describe how each program you are applying for fits in with your course of study at Caltech. If you are applying for several programs with a range of course types, provide this information in the order of your program preference with #1 being your most preferred study abroad university.

Studying at UCL would be the best program for me, since two of my four classes would count for credit for specific classes here at Caltech that I would take junior year: Biochemistry and Tissue and Organ Physiology. The additional biology classes I would take are interesting to me and fit with my study of Neurobiology at Caltech. The first is Biology of Ageing. I wish to pursue research in neurodegenerative diseases, so taking a class where I learn about aging-related disease, stem cells and aging; immune senescence, prospects for treatments for ageing; and social and ethical implications research on ageing would be very fulfilling. Another course I would take which is unavailable here at Caltech is Animal Biodiversity, where we would focus on the animal kingdom, evolutionary relationships (phylogeny) and biological diversity of animals, and how they are adapted to different environments. I am interested in this class to get a sense of biology beyond the molecular level that I am used to here. London as a city is of course a bustling place where I could always study in a café, go shopping, or explore. While the calm of Pasadena is fun, I crave the experience of being in such a metropolitan area.

At Edinburgh, I would also be able to satisfy the required biochemistry class requirement as well as take two other general option credit courses that are interesting to me: Population and Community Ecology and Immunology. The only ecology offering at Caltech is Microbial Ecology, so being able to examine the relationships between interactions between organisms, the dynamics of populations and the environment would be fulfilling and unique to an experience at another university. If I were to study abroad in Edinburgh, I would be able to take Modern Middle Eastern History, in which I would learn the political, economic, social and cultural history of the Middle East, which would help me learn more about my background. I have learned American history in high school, but I did not learn any Middle Eastern History. Besides classes, I would be so excited to live in the greenest city in the UK, with its historical sites, physical beauty and safe community.

At Melbourne, which is well-known for biological sciences, I could satisfy my physiology requirement with Comparative Animal Physiology, and also take classes from those like Biology of Australian Flora and Fauna, Plant Biodiversity, or Earth's Microbiomes. Melbourne also has many humanities courses I am especially interested in, like Ethical Traditions in Islam, Islam in the Modern World, or Crisis Zone: Middle Eastern Politics. Going to Melbourne would be the most out of my comfort zone and provide the newest experience for me, as I feel that the city is the most unlike any I've been to before. I would love to live in Melbourne, which has beaches, wildlife, street art, and overall, the sense that the city is living and breathing, not to mention famous coffee.

3. PROPOSED COURSE LIST:

UCL Proposed Course List

At the beginning of UCL Course List, please include:

Total ECTS/UCL Credits: 60

Total ECTS/UCL Credits in Admitting Dept. (50% of coursework): 30 UCL Credits

Total CIT Units: 36

Course by Correspondence/Units: 0

1. Animal Biodiversity

<https://www.ucl.ac.uk/prospective-students/study-abroad-ucl/study-abroad-guide/modules/biol0012>

Level/Normal year taken: 2

Faculty: Life Sciences

Department: Biological Sciences

“Admitting Department”

Term: Fall

UCL credits: 15

Caltech units: 9

Type of Caltech credit: option credit

Caltech evaluator: Bruce Hay

Course description:

The animal kingdom (Metazoa) is a vast grouping with over 1.3 million described species placed in 30-40 phyla encompassing organisms as diverse as sponges, worms and whales. This course focuses on animal systematics and their biology. As such, we will focus on the evolutionary relationships (phylogeny) and biological diversity of animals, and how they are adapted to different environments. Due to the sheer size of the Metazoa we will focus on selected phyla, in order to obtain a broad understanding of the group. Teaching will consist of a combination of lectures, practicals in phylogenetic inference (in which you will reconstruct a phylogeny of some highly peculiar ‘animals’), a problem based learning exercise based around a ‘mystery’ invertebrate specimen, and further practical classes that highlight key characteristics and adaptations within vertebrate groups based on observations of live exhibits at London Zoo, and museum specimens from UCLs Grant Museum.

2. Biology of Ageing (BIOL0022)

Level/Normal year taken: 3

Faculty: Life Sciences

Department: Biological Sciences

“Admitting Department”

Term: Fall

UCL credits: 15

Caltech units: 9

Type of Caltech credit: option credit

Caltech evaluator: Bruce Hay

Course description:

This module surveys the biology of ageing (senescence), which is the main cause of disease in the world today. It covers evolutionary and mechanistic theories of ageing; comparative biology of ageing; the

genetics of ageing and long-lived mutants in model organism (eg C. elegans, Drosophila, the mouse); methods in ageing research (eg functional genomics); the biology of dietary restriction; cellular senescence, telomeres and cancer; ageing-related disease; the biology of insulin signalling, energy handling and associated diseases (eg diabetes and obesity); stem cells and ageing; immune senescence, prospects for treatments for ageing; and social and ethical implications research on ageing.

3. Biochemistry and Molecular Biology (BIOC0001)

<https://www.ucl.ac.uk/prospective-students/study-abroad-ucl/study-abroad-guide/modules/bioc0001>

Level/Normal year taken: 1

Faculty: Life Sciences

Department: Molecular Biosciences:

Term: Fall

UCL credits: 15

Caltech units: 9

Type of Caltech credit: Bi/Ch 110

Caltech evaluator: Bruce Hay

Course description: A first year module that is compulsory for most Life Science students. Lectures cover three main topics: Molecular Biology, Proteins and Enzymes and Metabolism

4. Human Anatomy and Embryology (Thorax, Abdomen, and Pelvis) (ANAT0005)

<http://www.ucl.ac.uk/prospective-students/study-abroad-ucl/study-abroad-guide/modules/anat0005>

Level/Normal year taken: 2

Faculty:

Department: Biomedical Sciences

Term: Fall

UCL credits: 15

Caltech units: 9

Type of Caltech credit: Bio 145a (tissue and organ physiology)

Caltech evaluator: Tydell

Course description:

The module is open to any interested student. It helps if you have taken the first year ANAT0001 Introduction to Anatomy and Development, but this is not essential provided you are willing to put in a little extra work. Students without any Life Sciences background should contact the module organizer in advance. A module of human anatomy, histology and embryology that covers the structure and development of the cardiovascular, respiratory, digestive and urinogenital systems (Term 1), and the head and neck, vertebral column and limbs (Term 2). Clinical and comparative aspects are introduced as appropriate so as to draw out the relationship between structure and function. Lectures are supplemented by practical demonstration sessions in the anatomy laboratory.