Study Abroad Program
– BME WSU

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Course Title

Human Neurophysiology & Its Application in Medical Robotics
Class and Touring Locations

[Map showing Class and Touring Locations in China and Taiwan]
| General information | 6 Weeks—May 16- June 30, 2016  
Departure on May 14 (Saturday)  
Class time: may 16- June 24  
Travel: June 25-29  
Return on June 30 (Friday) |
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<tr>
<td>Classroom</td>
<td>Nanjing Medical University and other several cities, China</td>
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<td>Lecture Time</td>
<td>29 class hours lecture &amp; 9 hours lab/hospital touring</td>
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<td>Total 32 class hours (2 Credits)</td>
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<td>Instructor</td>
<td>Chaoyang Chen, MD, Associate Professor, Research</td>
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Overview

• Course name: BME 5995 /EGR 5995 (2 Cr.)
• Cost: $500 (used for insurance and WSU administration fee) excludes airfare and tuition
• Course will be taught in Nanjing Medical University in Nanjing, however, students will also travel to, Beijing, Xi-An, Fuzhou, and Shanghai in China for Robotic labs/Hospitals touring
• This program is open to junior and senior undergraduate and first-year graduates students
Course Syllabus

Objective:

• To acquire a core scientific knowledge about human neurophysiology and joint kinesiology

• To be aware of current clinical rehabilitation and challenges

• To understand current research on intuitive medical robot controls.
Course Syllabus

Teaching modalities:

1. Classroom didactic lectures
2. Case-based studies
3. University laboratory and hospital touring
4. Project-based-lecture: cross-cultural teams aiming at solving problems in medical robot research and development
Extra-Curriculum Activities

• Students will live on campus and may be paired with Chinese students
• Trips to Beijing, Shanghai, Xi-An, Fuzhou Cities
• Opportunities for cultural trips in these cities (Great Walls, Xian Terracotta Army...)
• Experiencing bullet train and sight seeing
Touring 1: Beijing, China
Tsinghua University, State Key laboratory of Automotive Energy & Safety

Lecture topics:
• Brain wave based drowsy driving monitoring
• Vehicle based human physiology monitoring system
Turing 2: Shanghai Jiaotong University

1. Shanghai Engineering Research Center Photonic Biomedical Equipment
2. Joint Laboratory of Industrial Robot Intelligent Technology

Lecture topics:
• EMG controlled hand prosthesis
• Industrial robot arm control

3-D printer for Hand prosthesis
Turing 3: Xi-An, China
Xi-An JiaoTong University

EEG controlled wheelchair movements

EEG controlled spelling

Image controlled robot motions
Xi-An JiaoTong University
Brain wave controlled wheelchair movement
Xi-An JiaoTong University
Robotic platform for human limb optical tracking in open space
Touring 4: Fuzhou, China
Red Cross Hospital

- Surgery/orthopedic surgery departments
Touring 4: Fuzhou, China General Hospital

Lecture Topics:
Neurosurgery, intracranial electrode implantation, 24 hours EEG monitoring, MRI/MRS/PET of brain

Intracranial electrodes for seizure monitoring
Sightseeing

Beijing Great Walls, Beijing
Xian Terracotta Army, Xi-An

Bird’s-eye view of Shanghai
Costs & Administration

- Free room and board provided by Universities
- Standard tuition and fees for 2-credit BME 5995/EGR 5995 course
- Each student can apply for Dean’s Office scholarship ($1,000)
- Apply through the Study Abroad Office; this Office handles most of the administrative paperwork
- Academic paperwork goes through regular channels