COURSE DETAIL

MATERIALS SCIENCE IN LIFE

Country
China

Host Institution
Fudan University

Program(s)
Shanghai Summer

UCEAP Course Level
Upper Division

UCEAP Subject Area(s)
Materials Science

UCEAP Course Number
101

UCEAP Course Suffix
S

UCEAP Official Title
MATERIALS SCIENCE IN LIFE

UCEAP Transcript Title
MATERIALS SCI/LIFE

UCEAP Quarter Units
4.00

UCEAP Semester Units

2.70

Course Description
Discovery of new materials properties leads to our better understanding of the fundamental organization of matter, and utilization of novel properties, effects, and functions for specific applications. Many properties of modern materials can be changed by varying the size and not chemical compositions of materials, from macro- to micro- to nanoscale. This course introduces an interdisciplinary nature to materials properties, which are divided by size (from macro- to nano), time (past: traditional; present: bioinspired, semiconductor, composites; future: nanomaterials, intelligent materials) and properties (mechanical, magnetic, thermal, chemical, optical, acoustic, electronic). The course explores a combinatorial approach to materials' design; how materials properties, effects, and functions are integrated; what we can learn from biology; and how future smart materials might look. Students develop a designer approach and real-world problem solving skills. Assessment: attendance (20%), oral presentation (40%), written problem solving (40%).

Language(s) of Instruction
English

Host Institution Course Number
MATE170001

Host Institution Course Title
MATERIALS SCIENCE IN LIFE

Host Institution Campus
International Summer School

Host Institution Faculty

Host Institution Degree

Host Institution Department
Science & Technology

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