Science, Technology, Environment and Maths Program Directions

I. Program Title

Science, Technology, Environment and Maths, English-taught Program (abbreviated below to “STEM”).

II. Vision and Objectives

STEM is based on the current industry trends and comprised of advanced courses in physics, chemistry, chemical engineering, biomedicine, and environmental sciences. This all-English taught program provides graduate students with systematic cross-disciplinary knowledge and training in material synthesis, physical characteristics measurement, design of bio-sensing electronic components, and bio-technological application. We aims to cultivate cross-disciplinary elites in academia and in industry, strengthen students’ international competitiveness, and lead the trends of cross-disciplinary leaning.

To meet the urgent demand for cross-disciplinary personnel in high-tech industries, cross-disciplinary training is indispensable for cutting-edge scientific research and development institutions. In response to this, the STEM program is launched. As more and more interdisciplinary research happens, we expect the STEM program to serve as a new learning platform without traditional restraints to prepare our students in becoming a cross-disciplinary talent with international perspective.

Our future goal is to develop this credit program into a degree program so as to bolster cross-disciplinary research competitiveness. Also, we offer English-taught courses for overseas students in response to a boom in international academic exchange. With the support of the New South-Bound Policy, we gather professors from five departments to educate students at home and abroad. Through the STEM program, we look forward to training students for cross-disciplinary research and exerting CCU’s influence in international academia.

III. Participating Departments

The following departments have participated in the STEM Program: the Department of Chemical Engineering, the Department of Physics, the Department of Biomedical Sciences, the Department of Chemistry and Biochemistry, and the Department of Earth and Environmental Sciences.

IV. Faculty

Participating professors from the aforementioned five departments are listed below.

Department of Chemical Engineering	Wen-Chien Lee, Yuan-Yao Li, Kuang-Tse Huang, Jing-Cherng Tsai
Department of Physics	Chia-Chen Hsu
Department of Chemistry and Biochemistry	Lai-Kwan Chau, Wei-Ping Hu, Shau-Chun Wang, Jong-Yuh Cherng, Shuchun Joyce Yu
Department of Biomedical Sciences	Michael Chan, Hau-Ren Chen, Ming-Ko Chiang, Cheng-I Lee
Department of Earth and Environmental Sciences	Chien-Yen Chen, Bing-Mu Hsu, Hung-Chun Chao, Liang-Chi Wang

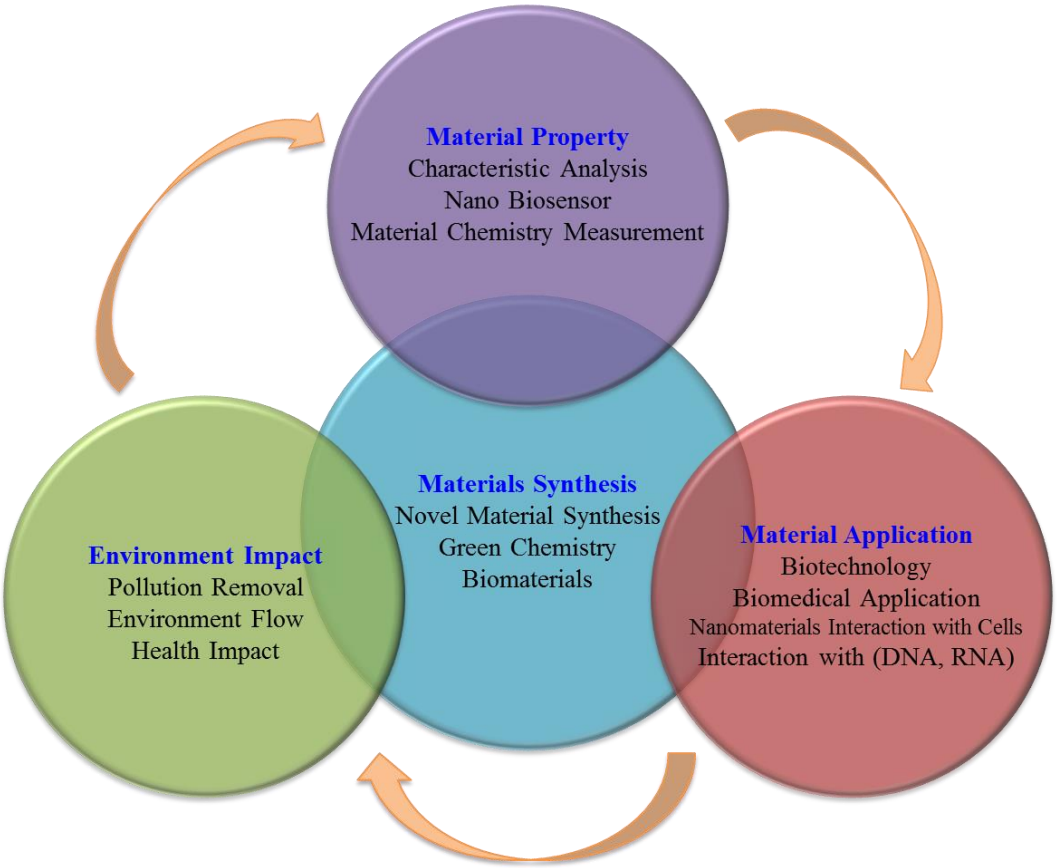
V. Completion Requirements

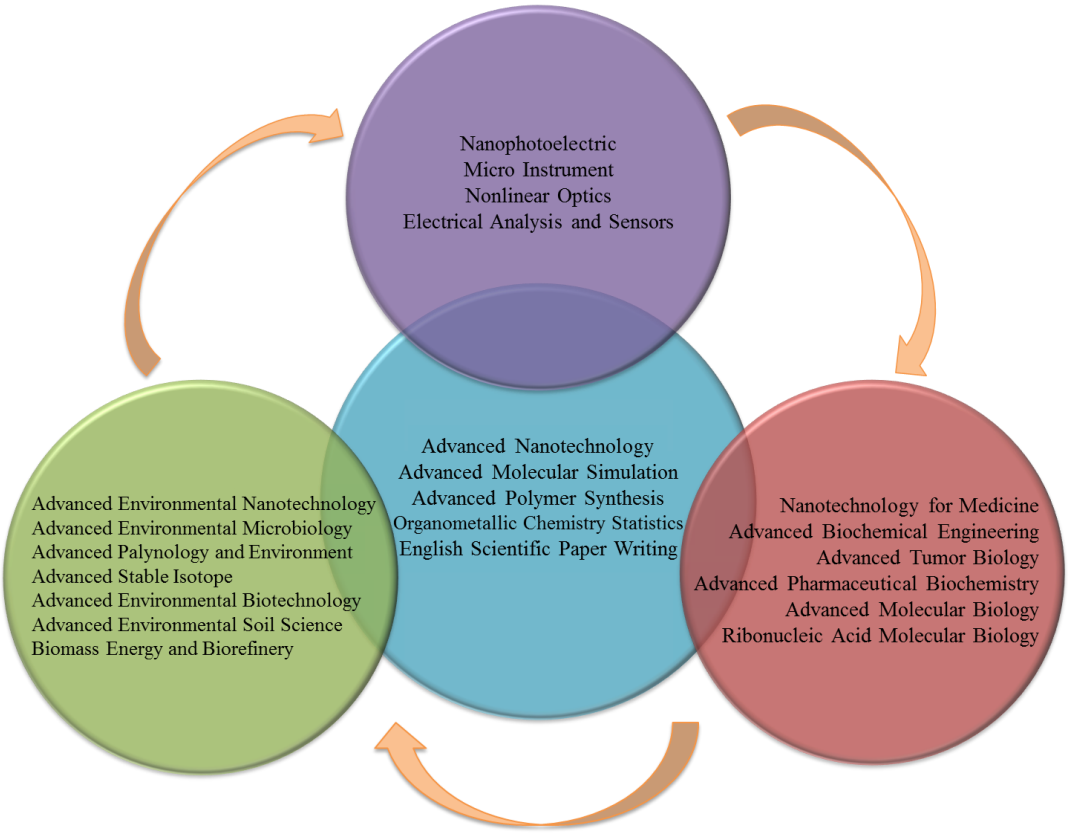
STEM is a credit program only available to graduate students. To complete the program and be presented with a certificate, one must earn no less than 12 credits in total. All course credits are electives; nonetheless, at least 9 out of the 12 elective credits must be cross-department or cross-college course credits.

VI. Eligibility and Application Procedure

The application of the STEM Program is limited to the enrolled graduate students (including exchange students). One should apply to the STEM Program Center, that is, the College of Science, and receive official approval to proceed.

VII. Courses and Instructors





No.	Department	Course Title	Instructor	Credits
1	Department of Chemical Engineering	Nanotechnology	Yuan-Yao Li	3
2	Department of Chemical Engineering	Biomass Energy and Biorefinery	Wen-Chien Lee	3
3	Department of Chemical Engineering	Biochemical Engineering	Kuang-Tse Huang	3
4	Department of Chemical Engineering	Advanced Polymer Synthesis	Jing-Cherng Tsai	3
5	Department of Physics	Nonlinear Optics	Chia-Chen Hsu	3
6	Department of Physics	Nano Photoelectric	Chia-Chen Hsu	3
7	Department of Chemistry and Biochemistry	Electrical Analysis and Sensors	Lai-Kwan Chau	3
8	Department of Chemistry and Biochemistry	Advanced Molecular Simulation	Wei-Ping Hu	3
9	Department of Chemistry and Biochemistry	Bioanalytical Applications of Microfluidics	Shau-Chun Wang	2
10	Department of Chemistry and Biochemistry	Organometallic Chemistry Statistics	Shuchun Joyce Yu	3
11	Department of Chemistry and Biochemistry	Advanced Pharmaceutical Biochemistry	Jong-Yuh Cherng	3
12	Department of Biomedical Sciences	Advanced Tumor Biology	Michael Chan	3
13	Department of Biomedical Sciences	RNA Molecular Biology	Hau-Ren Chen	2
14	Department of Biomedical Sciences	Advanced Molecular Biology	Hau-Ren Chen Ming-Ko Chiang	3
15	Department of Biomedical Sciences	Nanotechnology for Medicine	Cheng-I Lee	2
16	Department of Earth and Environmental Sciences	Advanced Environmental Biotechnology	Bing-Mu Hsu	3
17	Department of Earth and Environmental Sciences	Advanced Environmental Microbiology	Bing-Mu Hsu	3
18	Department of Earth and Environmental Sciences	Palynology and Environment	Liang-Chi Wang	3
19	Department of Earth and Environmental Sciences	Stable Isotope Geochemistry	Hung-Chun Chao	3
20	Department of Earth and Environmental Sciences	English Scientific Paper Writing	Chien-Yen Chen	3
21	Department of Earth and Environmental Sciences	Advanced Environmental Nanotechnology	Chien-Yen Chen	3
22	Department of Earth and Environmental Sciences	Advanced Environmental Soil Science	Chien-Yen Chen	3
23	College of Science	Seminar (I)(Ⅱ)(Ⅲ)(Ⅳ)	Chien-Yen Chen	1

※ Please note that the above course list is tentative and subject to change. For latest updates on the courses offered every term, please refer to the Course Selection System or the STEM Program web page.