

シラバス参照

④ 科目ナンバリング	TCH-MAC303J
④ 開講年度	2023
④ 科目名	化学・バイオ工学 I
④ 科目名(英語)	Chemical and Biomolecular Engineering I
④ 単位数	2
④ 担当教員	三ツ石 方也 大井 秀一 亀田 知人 菅 恵嗣 富重 圭一 林 大和 PICHIERRI FABIO
④ メディア授業科目 /Course of Media Class	

④ 開講言語	英語 E
④ 授業の目的・概要及び達成方法等	----- Google Classroom用のクラスコードは「ycpuqav」です。 -----
④ 授業の目的・概要及び達成方法等 (E)	<p>Google Classroom class code: ycpuqav</p> <p>Purpose/Abstract We are surrounded by a large number of chemical products manufactured with various types of materials including organic, inorganic and their composite materials. Even in our body, biological materials are constantly being produced with the help of specialized enzymes and biochemical reactions. The objective of the present course is to provide chemistry-oriented topics concerned with the development of functional materials in various areas of engineering.</p> <p>Goal Students will learn some basic aspects of chemical production, with special emphasis on environmentally friendly methodologies for the synthesis of fine chemicals and advanced materials.</p> <p>Contents This course is offered in the Spring semester with the goal of understanding chemical and biomolecular engineering. Various topics will be presented by different instructors, as listed in the course schedule below, with each instructor giving two lectures for each topic.</p>
④ 他の授業科目との関連及び履修上の注意	
④ 他の授業科目との関連及び履修上の注意(E)	It would be desirable that the students attending this class have wide knowledge of fundamental chemistry at the undergraduate course level.
④ 授業計画	
④ 授業計画 (E)	<p>1. Chemistry of carbon nanomaterials by Assoc. Prof. Fabio PICHIERRI 1-1. Structure and bonding in organic molecules 1-2. Fullerenes, carbon nanotubes and graphene</p> <p>2. Chemistry of polymer nanoassemblies by Prof. Masaya MITSUISHI 2-1. Polymer nanosheets 2-2. Cyclosiloxane building blocks</p> <p>3. Catalytic production of chemicals from biomass by Prof. Keiichi TOMISHIGE 3-1. Production of pure platform chemicals from biomass 3-2. Conversions of biomass-derived platform chemicals</p> <p>4. SDGs nanomaterial processing by Assoc. Prof. Yamato HAYASHI 4-1. Concept of nanomaterial processing in SDGs 4-2. Application of nanomaterial processing in SDGs</p> <p>5. Fine synthetic organic chemistry using metallic reagents by Prof. Shuichi OI 5-1. Synthetic methodologies using metallic reagent 5-2. Synthesis of luminescent materials</p> <p>6. Chemistry of surfactant and amphiphile in water by Assoc. Prof. Keishi SUGA 6-1. Basic aspects of surfactant self-assembly 6-2. Application of self-assemblies: food, cosmetic, and medicine</p>

	7. Technology for protection and purification of aquatic environment by Prof. Tomohito KAMEDA 7-1. Water treatment technology for hazardous substances 7-2. Application of inorganic compounds
④ 授業時間外学修	ノートや配布資料を復習し、理解を深める。
④ 授業時間外学修(E)	To deepen understanding after each class, review and summarize the content of learning looking back at one's own notes, the handout or prints that were delivered by each instructor.
④ 成績評価方法及び基準	レポート、課題、授業で実施する小テスト等により学修目標への達成度を総合的に評価する。
④ 成績評価方法及び基準(E)	Evaluation is performed comprehensively based on reports, homework, short tests etc.
④ 教科書および参考書	
④ 関連URL	
④ 添付ファイル	
④ オフィスアワー	
④ オフィスアワー(E)	After each lecture in the class room, otherwise any time at his/her office but an appointment should be made in advance.
④ 備考	The handout and/or prints will be delivered by each instructor in his/her class.
④ 実務・実践的授業 / Practical business ※○は、実務・実践的授業であることを示す。 / Note: "○" Indicates the practical business	
④ その他	
④ 更新日付	2023/03/14 14:19

1単位の授業科目は、45時間の学修を必要とする内容をもって構成することを標準としています。1単位の修得に必要な学修時間の目安は、「講義・演習」については15～30時間に授業および授業時間外学修(予習・復習など)30～15時間、「実験・実習及び実技」については30～45時間の授業および授業時間外学修(予習・復習など)15～0時間です。

One-credit courses require 45 hours of study. In lecture and exercise-based classes, one credit consists of 15-30 hours of class time and 30-15 hours of preparation and review outside of class. In laboratory, practical skill classes, one credit consists of 30-45 hours of class time and 15-0 hours of preparation and review outside of class.