

Course number		U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Introduction to Organic Electronics (初心者向け有機エレクトロニクス)		Instructor's name, job title, and department of affiliation	Institute for Chemical Research Senior Lecturer,MURDEY , Richard James		
	ILAS Seminar-E2 :Introduction to Organic Electronics					
Group	Seminars in Liberal Arts and Sciences		Number of credits	2	Number of weekly time blocks	1
Class style	seminar (Face-to-face course)	Year/semesters	2024 ・ First semester		Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors		Days and periods	Tue.5
Classroom	04, Yoshida-South Campus Academic Center Bldg. West Wing				Language of instruction	English
Keyword	chemistry / molecules / semiconductors / physics / technology					

[Overview and purpose of the course]

Some organic molecules and polymers can behave as electrical semiconductors, a property that makes them useful materials for electronics. In this seminar course, you will learn why certain molecules conduct electricity, how organic semiconductors are made, and how devices like organic solar cells and organic transistors work. The lectures are structured as individual topics, selected to show the main aspects of this exciting research field. The material is aimed at 1st and 2nd year students interested in learning about science in English. 3rd and 4th year students are also welcome. Seminars are presented in English. Discussion is in English and Japanese.

[Course objectives]

This seminar course will give students a general overview of the field of organic electronics.

[Course schedule and contents)]

1. Organic electronics in the world today
2. Organic molecules and polymers - what makes them semiconductors?
3. Understanding electricity and conductivity
4. The difference between inorganic and organic materials
5. An introduction to energy levels
6. Defects and imperfections
7. Fabrication methods
8. Some really basic electronics
9. Device measurement: in-class demo
10. Selected examples in current research
11. Solar cells
12. Lighting and displays
13. Transistors
14. The next frontier...
15. [no class]
16. Feedback

[Course requirements]

None

[Evaluation methods and policy]

Each lecture will introduce a short homework assignment related to the topic covered. These assignments count for 70% of the final grade. Attendance and class participation count for 30%.

[Textbooks]

Not used

[References, etc.]

(References, etc.)

Introduced during class

[Study outside of class (preparation and review)]

Weekly assignments reinforce key concepts introduced in the seminars.

[Other information (office hours, etc.)]