

Course	Research and Development for Agro-Biomedical Science I
Course No.	
Credits	3 Credits
Grade	1 Year
Timetable	Fall AB by appointment
Instructor	Yoshito Kumagai, Yumi Abiko, Masahiro Akiyama, Masao Ichikawa, Osamu Ohneda, Masayuki Matsumoto, Kazuya Morikawa, Ryosuke Ohniwa, Hiroshi Ezura, Chiaki Matsukura, Yuichi Yamaoka, Peter Junichi Abe, Yutaka Kitamura
Course Overview	In this course, students learn the principles and methodologies of research related to Agro-Biomedical Science through-working on specific research themes in the common laboratory for Agro-Biomedical Science and a lab managed by instructors. The instructors from University of Tsukuba will nurture the fundamentals of Health and Food sciences, evaluating biotic effects and safety of substances, etc. Students must prepare a report of their research progress which is evaluated by the instructor who host the student.
Remarks	Conducted in English.
Course Type	Practical training and experiments
Link between Course Objectives and Activities	To nurture the fundamentals for Agro-Biomedical Science such as ability to connect health and food resources, ability to engage in issues related to health security, and ability to engage in food security, through attending laboratory practices hosted by instructors.
Academic Goal	<ol style="list-style-type: none"> <li>1. To be able to survey the research topics of instructors.</li> <li>2. To be able to explain subjects and methods of each experiment/analysis.</li> <li>3. To be able to explain and discuss about results and interpretation of each experiment/analysis.</li> <li>4. To be able to explain the purpose of each experiment and analysis in the current research topic.</li> <li>5. To be able to explain the significance of the current research topic from the standpoint of Agro-Biomedical Science.</li> </ol>
Course Schedule	<p>Students need to stay in the lab hosted by one instructor listed below, and participate in the practices in the lab.</p> <p>Theme 1: Environmental medical science (Yoshito Kumagai, Yumi Abiko, Masahiro Akiyama)</p> <p>Theme 2: Stem cell biology (Osamu Ohneda)</p> <p>Theme 3: Global health (Masao Ichikawa)</p> <p>Theme 4: Neurophysiology (Masayuki Matsumoto)</p> <p>Theme 5: Bacterial genetics (Kazuya Morikawa)</p> <p>Theme 6: Molecular microbiology (Ryosuke Ohniwa)</p> <p>Theme 7: TBD</p> <p>Theme 8: Plant parasitic mycology (Yuichi Yamaoka)</p> <p>Theme 9: Molecular genetics and breeding (Hiroshi Ezura)</p> <p>Theme 10: Plant physiology (Chiaki Matsukura)</p> <p>Theme 11: Mycorrhizal fungi (Peter Junichi Abe)</p> <p>Theme 12: Food and biomass engineering (Yutaka Kitamura)</p>
Course Prerequisites and Advisories	
Grading Philosophy (Percentage/ Criteria/ Methodology)	<p>Class participation (50%), Report (50%).</p> <p>Theme of report is "Summary of your research in the lab, and its relation to Agro-Biomedical Science".</p> <p>Grading Criteria is A+ (Superior), A (Excellent), B (Good), C (Average) and D (Failure).</p>
Self-Directed Learning Other Than Coursework	Discussion with instructors and lab members
Textbooks, References and Supplementary Materials	Distributed by instructors in class

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Other (i.e. Expectations on Classroom, Conduct and Decorum etc.)	
Related Courses	<p>Agro-Biomedical Science Laboratory Seminar I Fusion of Field and Laboratory Studies Biomedical Translation Boot Camp Research and Development for Agro-Biomedical Science II Field to Laboratory Practices with Data Management &amp; Data Mining Integrative Unit with Omic &amp; Bioinformatic Tools</p>
Keywords	Lab, Experiments, Analyses