

## Elective Course Description (1. Fall Semester)

Subject (English)	Agricultural Sciences "Agriculture and life science"		Semester	Fall	Day/Slot	
科目名 (日本語)	農学					
Course Code		Course Numbering	AAL-OAG201E		Period	Oct. – Feb.
Instructor (Post)	TBC				Campus	
					Building	
Faculty	Faculty of Agriculture		Credits	2	Class Room	
Class subject	Agriculture and life science					
Object and summary of class	Recent advance in bioscience and biotechnology have opened new frontiers in the fundamental understanding of life in the practical fields of bio-industries, agriculture and environment. The course objective is to educate students to learn living organisms such as plants, animals and microbes at the molecular, cellular whole body or whole plant and ecosystem levels. This course will give each student recent progress in the research-field of molecular biology, cell biology, physiology, and ecology in plants, animals, and microbes.					
Keywords	Agriculture, molecular biology, cell biology, physiology, ecology, plants, animals, microbes.					
Goal of study	Students will come to understand basic agricultural life sciences.					
Contents and progress schedule of class	<ol style="list-style-type: none"> <li>1. Plant biotechnology for the development of plants with novel characteristics</li> <li>2. Marine ecosystems and land ecosystems</li> <li>3. Basic Entomology</li> <li>4. In this lecture, students will understand the basic entomology.</li> <li>5. Forage production and grazing systems in Japan</li> <li>6. Rice and vegetable varieties in Japan</li> <li>7. Carbon and nitrogen assimilation in plants</li> <li>8. Oxygen evolution during photosynthetic process</li> <li>9. Plant immune system against virus infection</li> <li>10. Late effects on central nervous system and reproductive organ induced by early exposure of environmental</li> <li>11. chemicals</li> <li>12. Recent progress in the mucosal vaccine development</li> <li>13. Mitochondria-driven energy metabolism in birds</li> <li>14. Epigenetic regulation of genome functions</li> <li>15. Structures and functions of enzymes</li> </ol>					
Preparation	Take a look at the web site of each professor. <a href="http://www.agri.tohoku.ac.jp/en/about/organization/graduate/index.html">http://www.agri.tohoku.ac.jp/en/about/organization/graduate/index.html</a>					
Record and evaluation method	Attendance and class participation					
Textbook and references	Textbook and references will be introduced by each professor.					
Self study	Review each class using handouts					
In addition	-					