

[Title]			[Instructor]		
Advanced Molecular Biology			Satoko Noda		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326515	2	Biotechnology Special Educational Program on Enology and Viticulture	1st Semester	Mon./II	Japanese
[Outline and purpose]					
Molecular biology is the study of the structure and function of genes and the proteins they encode, including genome sequencing and other omics technology. In addition to biology, study in the area of computational biology will enable to generate meaningful solutions from large data sets. This class provides advanced theoretical and practical training in molecular biology.					
[Objectives]					
To understand recent molecular biology techniques.					
[Requirements]					
Basic knowledge of biochemistry, molecular genetics, and microbiology					
[Evaluation]					
Presentation 50% Submission of a report 20% Attendance & participation 30%					
[Textbooks]					
[References]					
1. Molecular Biology of the Cell, 5th edition, Bruce Alberts, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts, Peter Walter, Garland Science, ISBN-10: 0815341067 2. Molecular Biology of the Gene 5th edition, James D. Watson, Tania A. Baker, Stephen P. Bell, Alexander Gann, Michael Levine, Richard Losick, Pearson international edition ISBN-10: 0321507819					
[Schedule]					
1. Outline of Molecular Biology 1 2. Outline of Molecular Biology 2 3. Structure and function of genome 4. omics 1: genomics and transcriptomics 5. omics 2: proteomics and metabolomics 6. Discussion 1 7. Discussion 2 8. Molecular Evolution 9. Evolutionary rate of the gene 10. Evolutionary models 11. Database 1 12. Database 2 13. Protein sequence analysis & classification 14. Phylogenetic tree 15. Discussion and Conclusion					

[Title]			[Instructor]		
Structural Biology			Masami Kusunoki		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326545	2	Biotechnology Special Educational Program on Enology and Viticulture	1st Semester	Fri./II	English/ Japanese
[Outline and purpose]					
Structural biology is a field of the major biological sciences and contributes to the understanding of biological functions and processes in terms of three-dimensional structure of proteins. In this class, the students will be able to understand the foundation of protein crystallography, to use various biological molecular databases, and to read research papers of structural biology.					
[Objectives]					
To understand the foundation of protein crystallography To understand how to utilize various biological molecular databases To be able to read research papers of structural biology					
[Requirements]					
Basic knowledge of biochemistry of proteins Basic knowledge of physical chemistry					
[Evaluation]					
Submission of a report 70% Attendance to the class 30%					
[Textbooks]					
[References]					
1. 相原茂夫 編著, タンパク質野結晶化, 京都大学出版局, ISBN:4876986576 2. 倉光成紀 杉山政則 編集, 構造生物学, 共立出版(株), ISBN:9784320056497 3. G.A ペツコ D. リンゲ 著 横山茂之 監訳, タンパク質の構造と機能, メディカル・サイエンス・インターナショナル, ISBN:489592422 4. 樋口 芳樹, 中川 敦史, 構造生物学 一原子構造からみた生命現象の営み, 共立出版, ISBN:4320057015					
[Schedule]					
1. Outline of structural biology 2. PubMed, biological abstract database of biological literature 3. Structural biology of serine protease 4. Uniprot, protein sequence database 5. PDB, protein structure database 6. PyMol, Graphical presentation software of protein structures 7. Molecular evolution, protein sequence alignment, amino acid substitution matrix 8. JalView, sequence alignment and manipulation software 9,10. Expression, purification, and crystallization of proteins 11-13. Protein crystallography 14. How to read research papers of structural biology 15. Structural biology of membrane proteins					

[Title]			[Instructor]		
Advanced Approach to Biological Informations			Takashi Ohtsuki		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326555	2	Biotechnology Special Educational Program on Enology and Viticulture	2nd Semester	Tue./I	Japanese / English
[Outline and purpose]					
Biomolecules such as nucleic acids and proteins play important roles in cellular functions. Structures of biomolecules are closely associated with their functions. The strategy to obtain information about biomolecule structure from nano-scale to macro-scale, to annotate the information and function, to utilize the information, will be discussed.					
[Objectives]					
<ol style="list-style-type: none"> <li>1. Understanding conventional techniques.</li> <li>2. Expansion of potency for exploitation in research works.</li> </ol>					
[Requirements]					
Knowledge-based potentials around biochemistry and molecular biology will be required.					
[Evaluation]					
Report work: 40% General discussion: 50% Presentation: 10%					
[Textbooks]					
Not assigned					
[References]					
Not assigned					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Introduction –nucleic acids</li> <li>2. Introduction –proteins</li> <li>3. Principles of instruments for analysis</li> <li>4. Case in getting biological information 1</li> <li>5. Case in getting biological information 2</li> <li>6. Case in getting biological information 3</li> <li>7. Case in utilization of biological information 1</li> <li>8. Case in utilization of biological information 2</li> <li>9. Case in utilization of biological information 3</li> <li>10. Availability of database 1</li> <li>11. Availability of database 2</li> <li>12. Availability of database 3</li> <li>13. Discussion on hot-topics 1</li> <li>14. Discussion on hot-topics 2</li> <li>15. Final discussion</li> </ol>					

[Title]			[Instructor]		
Adevanced Biological Reaction			Kazuo Nakamura		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326580	2	Biotechnology Special Educational Program on Biotechnolgy	1st Semester	Wed./ I	Japanese
[Outline and purpose]					
Biological reactions containing microbial reaction and biochemical reaction have been based on enzymatic reaction. The lecture will show the relationship of microbiological reaction and enzymatic reaction.					
[Objectives]					
<ol style="list-style-type: none"> <li>1. To deepen the fundamental knowledge concerning biological reactions</li> <li>2. To understand the specific properties of microbiological and enzymatic reactions</li> <li>3. To learn the treatment of enzyme protein</li> <li>4. To understand the application with special reaction of microorganism</li> </ol>					
[Requirements]					
Learning of microbiology, enzymology, microbial physiology and bioengineering					
[Evaluation]					
Understanding ability of lecture: 70% Attendance and self-study: 30%					
[Textbooks]					
[References]					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Fundamental of enzyme reaction (Activity of enzyme)</li> <li>2. Fundamental of enzyme reaction (Classification of enzyme, Structure of protein)</li> <li>3. Culture of microorganism and biological reaction (Culture of filamentous microorganism)</li> <li>4. Culture of microorganism and biological reaction (Fermentation by mold)</li> <li>5. Culture of microorganism and biological reaction (Classification of mushroom, Components of mushroom)</li> <li>6. Culture of microorganism and biological reaction (Cultivation and growth of mushroom)</li> <li>7. Culture of microorganism and biological reaction (Fermentation by mushroom)</li> <li>8. Midterm evaluation and examination</li> <li>9. Isolation and purification of microbial enzyme (Cell disruption, Fractionation of cell component)</li> <li>10. Isolation and purification of enzymatic protein (Preparation of cell free extract)</li> <li>11. Isolation and purification of enzymatic protein (Chromatography and electrophoresis)</li> <li>12. Purification and characterization of enzyme (Physicochemical and enzymatic properties)</li> <li>13. Application of biological reaction (Mushroom biotechnology)</li> <li>14. Application of biological reaction (Mushroom and health)</li> <li>15. Final evaluation and examination</li> </ol>					

[Title]			[Instructor]		
Advanced Bioreactor Engineering and Cell Kinetics			Hiroshi Kurosawa		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326590	2	Biotechnology Special Educational Program on Enology and Viticulture	1st Semester	Tue./I	English/ Japanese
[Outline and purpose]					
The heart of a typical bioprocess is the reactor (bioreactor). The major chemical and biochemical transformations occur in the bioreactor. Characteristics of the reaction in bioprocesses are discussed and illustrated.					
[Objectives]					
<ol style="list-style-type: none"> <li>To understand the basic aspects of reaction theory and to identify important factors affecting reaction rate</li> <li>To understand the kinetics of cell growth</li> </ol>					
[Requirements]					
Groundings in mathematics and chemical engineering.					
[Evaluation]					
Quiz and report		70%			
Attendance/Attitude		30%			
[Textbooks]					
[References]					
Pauline M. Doran: Bioprocess Engineering Principles, Academic Press, 0122208560 James E. Bailey, David F. Ollis: Biochemical Engineering Fundamentals (Second edition), McGRAW-HILL, 0070032122					
[Schedule]					
<ol style="list-style-type: none"> <li>Basic reaction theory</li> <li>Reaction yield</li> <li>Reaction rate</li> <li>Reaction kinetics</li> <li>Effect of temperature on reaction</li> <li>Yield in cell culture</li> <li>Cell growth kinetics</li> <li>Effect of substrate concentration</li> <li>Growth kinetics with plasmid instability</li> <li>Production kinetics in cell culture</li> <li>Kinetics of substrate uptake in cell culture</li> <li>Effect of culture conditions on cell kinetics</li> <li>Effect of maintenance on yield</li> <li>Biomass yield from substrate</li> <li>Product yield from substrate</li> </ol>					

[Title]			[Instructor]		
Advanced Bioorganic Chemistry			Hideyuki Shinmori		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326600	2	Biotechnology Special Educational Program on Enology and Viticulture	2nd Semester	Wed./I	Japanese
[Outline and purpose]					
Self-assembly is the spontaneous organization of organic molecules. Self-assembly is especially evident in biology and much of the early inspiration for studies of self-assembly came from biological aggregates with bioactivities: lipid bilayers, the DNA duplex, and the tertiary and quaternary structure of proteins. Therefore, the biofunction at the nanolevels and biotechnology relationship to nanotechnology are chemically discussed and explained.					
[Objectives]					
1. to understand the biofunction at the level of a molecule and fundamental knowledge of biomolecules 2. to make the paper on special problems with respect to the biofunction					
[Requirements]					
a grounding in organic chemistry					
[Evaluation]					
midterm examination : 40% final examination : 40% attendance : 20%					
[Textbooks]					
[References]					
[Schedule]					
1. Stereochemistry of biomolecules 2. Lipid chemistry 3. Carbohydrate chemistry 4. Chemistry of vitamin 5. Nucleic acid chemistry 6. Chemistry of amino acids, peptides, and proteins 7. Enzyme-catalyzed reaction and the organic mechanisms of the coenzymes 8. Biomimetic chemistry 9. Molecular recognition 10. Nanobiotechnology 11. Biological supramolecules and nano-machines 12. Biomaterials and bioengineering 13. Nano-science on biomaterials 14. Medical engineering 15. Environmental engineering					

[Title]			[Instructor]		
Advanced Industrial Microbiology and Biotechnology			Munekazu Kishimoto		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326610	2	Biotechnology Special Educational Program on Enology and Viticulture	2nd Semester	Thu./I	Japanese
[Outline and purpose]					
Microorganisms inhabit a diverse range of environments on Earth, and contribute to the conservation of the global environment through the decomposition of organic substances. In addition, microorganisms possess a wide variety of functions. Humans have harnessed these functions for the production of alcoholic beverages, food fermentation and the creation of useful materials. The aim of this class is to introduce basic knowledge about microorganisms and their industrial applications.					
[Objectives]					
To learn basic knowledge of microbiology. To understand the characteristics of microorganisms and their utilization in the fermentation industry.					
[Requirements]					
Basic knowledge of microbiology and biochemistry are necessary.					
[Evaluation]					
Attendance: 30% Report:30% Presentation: 40%					
[Textbooks]					
No specific text.					
[References]					
None					
[Schedule]					
1. Introduction 2-4. Classification, physiological properties of industrial microorganisms 5-6. Isolation, screening and preservation of industrial microorganisms 7-9. Characteristics and breeding of industrial microorganisms 10-12. Utilization of microorganisms in food fermentation 13-14. Utilization of microorganisms in the fermentation industry 15. Current research					

[Title]			[Instructor]		
Physiology of Plant Growth			Shunji Suzuki		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326620	2	Biotechnology Special Educational Program on Enology and Viticulture	2nd Semester	Thu./II	Japanese
[Outline and purpose]					
To use plants for food production and environmental conservation, we should learn plant physiology. Especially, molecular biology enables us to understand molecular events in plant cells. This class is opened to recognize agricultural plants at molecular level. Plant physiology and pathology are main contents.					
[Objectives]					
1. To understand key words concerning plant physiology 2. To solve the problems in plant growth and development					
[Requirements]					
Background of basic biology. But, not necessary.					
[Evaluation]					
Final examination: 40% Percentage of attendance: 20% Presentation: 40%					
[Textbooks]					
None					
[References]					
植物生理学 (第 3 版), 培風館, ISBN:4563077844 新編 植物病理学概論, 養賢堂, ISBN:4842598069					
[Schedule]					
1. Plant for agriculture 2. Fruit biology (carbohydrates) 3. Fruit biology (acids) 4. Fruit biology (phenols) 5. Fruit biology (aroma) 6. Fruit development 7. Gene expression in fruit development 8. Plant disease 9. Disease resistance in plant 10. Agricultural chemicals 1 11. Agricultural chemicals 2 12. Plant biotechnology 1 13. Plant biotechnology 2 14. Current problems in agriculture 15. Final examination					



[Title]			[Instructor]		
Utilization of Functional Food Compounds			Tohru Okuda		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326630	2	Biotechnology Special Educational Program on Enology and Viticulture	1st Semester	Thu./II	Japanese
[Outline and purpose]					
Compounds produced by living organisms have many types of functions. These functions affect human activities from many points of view. This class deals with analytical and utilization methods of these functional compounds.					
[Objectives]					
Acquisition of ability for explanation with logical routes.					
[Requirements]					
Basic knowledge for analytical equipment such as HPLC, spectrophotometer, and Mass spectrometry.					
[Evaluation]					
Power of understanding, positiveness for class, and presentation skill.					
[Textbooks]					
Not specify					
[References]					
Not specify					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Outline of function of living organisms 1</li> <li>2. Outline of function of living organisms 2</li> <li>3. Precise mechanisms of HPLC</li> <li>4. Precise mechanisms of balance</li> <li>5. Precise mechanisms of spectrophotometer</li> <li>6. Precise mechanisms of pH meter</li> <li>7. Precise mechanisms of Mass spectrometry</li> <li>8. Precise mechanisms of NMR</li> <li>9. Analytical methods of polyphenols</li> <li>10. Analytical methods of proteins</li> <li>11. Analytical methods of enzymes</li> <li>12. Analytical methods of amino acids</li> </ol>					

[Title]			[Instructor]		
Faculty Microbe Resources Engineering			Fujitoshi Yanagida		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326640	2	Biotechnology Special Educational Program on Enology and Viticulture	1st Semester	Thu./I	Japanese
[Outline and purpose]					
The fermentation industry using a microbe is used in a wide field. This class aims to teach basic knowledge of microbiology of taxonomy and wine microorganisms and lactic acid bacteria					
[Objectives]					
To learn basic knowledge of microbiology of taxonomy and some microorganisms.					
[Requirements]					
Basic knowledge of chemistry, biology and microbiology are needed.					
[Evaluation]					
Attendance: 30% Report: 70%					
[Textbooks]					
No specific text.					
[References]					
[Schedule]					
1 Introduction 2 Taxonomy of microbiology I 3 Taxonomy of microbiology II 4 Taxonomy of microbiology III 5 Chemical taxonomy I 6 Chemical taxonomy II 7 Chemical taxonomy III 8 Spore-forming lactic acid bacteria I 9 Spore-forming lactic acid bacteria II 10 Wine microbiology I 11 Wine microbiology II 12 Wine microbiology III 13 Lactic acid bacteria I 14 Lactic acid bacteria II 15 Conclusion					

[Title]			[Instructor]		
Analysis of Bio-Functional Factors			Masashi Hisamoto		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326650	2	Biotechnology	2nd Semester	Fri./II	Japanese
[Outline and purpose]					
Compounds produced by living organisms have plenty of functions, and these functional substances have many types of effect on our life. This class deals with functional compounds that produce by living organisms including analysis and utilization methods.					
[Objectives]					
Acquisition of explaining and question ability with logistic manner. Digging into problems.					
[Requirements]					
Basal knowledge on methodology of experimental analysis					
[Evaluation]					
Positiveness for class and presentation ability					
[Textbooks]					
Not specify					
[References]					
Not specify					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Outline of functional compounds produced by living organism 1</li> <li>2. Outline of functional compounds produced by living organism 2</li> <li>3. Mechanisms of HPLC</li> <li>4. Mechanisms of Balance</li> <li>5. Mechanisms of Spectrophotometer</li> <li>6. Mechanisms of pH meter</li> <li>7. Mechanisms of Mass spectrometry</li> <li>8. Mechanisms of NMR</li> <li>9. Practical measurement (polyphenols)</li> <li>10. Practical measurement (proteins)</li> <li>11. Practical measurement (enzymes)</li> <li>12. Practical measurement (amino acids)</li> <li>13. From genes to metabolites</li> <li>14. Utilization of polyphenols</li> <li>15. Other analysis of functional substances</li> </ol>					

[Title]			[Instructor]		
Molecular Biology of Plants			Shunji Suzuki		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326660	2	Biotechnology Special Educational Program on Enology and Viticulture	This subject isn't offered.		Japanese
[Outline and purpose]					
To use plants for food production and environmental conservation, we should learn plant molecular biology. Especially, plant biotechnology enables us to create novel plants, called as genetically modified plants. This class is opened to understand molecular events in plant cells at molecular level. Plant physiology and biotechnology are main contents.					
[Objectives]					
1. To understand key words concerning plant molecular biology 2. To understand the techniques for molecular plant breeding					
[Requirements]					
Background of molecular biology					
[Evaluation]					
Midterm examination: 40% Percentage of attendance: 20% Final examination: 40%					
[Textbooks]					
None					
[References]					
植物生理学（第3版），培風館，ISBN:4563077844					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Plant cell (chloroplast)</li> <li>2. Plant cell (vacuole)</li> <li>3. Plant cell (cell wall)</li> <li>4. Plant cell (other organelles)</li> <li>5. Cell cycle</li> <li>6. Signal transduction</li> <li>7. Plant hormones</li> <li>8. Midterm examination</li> <li>9. Pigments in plant cells</li> <li>10. Various spontaneous mutants</li> <li>11. Genetically modified plants (methods)</li> <li>12. Genetically modified plants (economical usage)</li> <li>13. Model plants</li> <li>14. Current researches in plant molecular biology</li> <li>15. Final examination</li> </ol>					

[Title]			[Instructor]		
Advanced Enology			Fujitoshi Yanagida / Munekazu Kishimoto / Misa Otoguro / others		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326670	1	Biotechnology Special Educational Program on Enology and Viticulture	Intensive	/	English/ Japanese
[Outline and purpose]					
This class aims to teach basic knowledge of winemaking and wine microorganisms from a scientific perspective. Current research on winemaking techniques, wine yeasts and lactic acid bacteria will also be introduced.					
[Objectives]					
To learn basic knowledge of winemaking and wine microorganisms. To cultivate skills that can be applied to practical winemaking.					
[Requirements]					
Basic knowledge of chemistry, biology and microbiology are needed.					
[Evaluation]					
Attendance: 30% Report: 70%					
[Textbooks]					
No specific text.					
[References]					
[Schedule]					
1 Classification of the major white and red wine style. 2 Wine making process. 3 Quality control 4 Regulations. 5 Wine microbiology 6 Malolactic fermentation 7 Advanced techniques for winemaking 8 Application of marine yeast for white wine making 9 Physiological characteristics of yeast 10 Classification and identification of yeasts 11 Selection criteria of wine yeast strains 12 Sugar degradation and alcoholic fermentation 13 Nitrogen requirement and other nutrients of wine yeast 14 Genetic techniques for the development of wine yeast strains 15 Current research					

[Title]			[Instructor]		
Viticulture			Shunji Suzuki / Hiroyuki Yamashita / others		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326680	1	Biotechnology Special Educational Program on Enology and Viticulture	Intensive	/	Japanese
[Outline and purpose]					
Quality of grape berries reflects quality of wine. This class is opened to learn how to cultivate healthy grapevines and, finally how to harvest high-quality grape berries.					
[Objectives]					
To understand viticulture including physiology, pathology, and cultivation					
[Requirements]					
Business experiences in viticulture and enology Academic background of viticulture and enology					
[Evaluation]					
Report: 80% Percentage of attendance: 20%					
[Textbooks]					
None					
[References]					
None					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Characterization of various grapevines</li> <li>2. Problem in viticulture</li> <li>3. Fruit set and maturation</li> <li>4. Techniques to cultivate grapevines</li> <li>5. Current topics for viticulture</li> <li>6. Relationship between fruit quality and climates</li> <li>7. Breeding of wine grapes in Yamanashi Prefectures.</li> <li>8. Breeding of wine grapes worldwide</li> <li>9. Physiology in fruit development (carbohydrates)</li> <li>10. Physiology in fruit development (organic acids)</li> <li>11. Physiology in fruit development (polyphenols)</li> <li>12. Physiology in fruit development (aroma compounds)</li> <li>13. Pathology in viticulture</li> <li>14. Agricultural chemicals in viticulture</li> <li>15. Summary</li> </ol>					

[Title]			[Instructor]		
Advanced Wine Evaluation I			Tohru Okuda / Masashi Hisamoto / Fumie Saito		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326690	1	Biotechnology Special Educational Program on Enology and Viticulture	Intensive	/	Japanese
[Outline and purpose]					
This class deals with basic knowledge of wine components and their measurement methods.					
[Objectives]					
Understanding chemistry of wine components and basic analysis methods					
[Requirements]					
Chemistry, physics on high school, and general knowledge on quality control on winemaking					
[Evaluation]					
Understanding of problems on quality controlling on winemaking					
[Textbooks]					
Not specify					
[References]					
Not specify					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Alcohols</li> <li>2. Organic acids</li> <li>3. pH and organic acids</li> <li>4. Tartaric acid and its precipitation</li> <li>5. Proteins and its turbidity</li> <li>6. Classification of polyphenols</li> <li>7. Low molecular weight polyphenols</li> <li>8. High molecular weight polyphenols</li> <li>9. Pigments and anthocyanins</li> <li>10. Oxidation of polyphenols</li> <li>11. Amino acids</li> <li>12. Taste</li> <li>13. Color</li> <li>14. Oder and flavor</li> <li>15. Evaluation of wines</li> </ol>					

[Title]			[Instructor]		
Advanced Wine Evaluation II					
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326700	1	Biotechnology Special Educational Program on Enology and Viticulture	Intensive	/	Japanese
[Outline and purpose]					
Learning about basics on sensory analysis and effect of alcohol for human, radical quenching activity of polyphenols, function of resveratrol and other topics.					
[Objectives]					
Acquisition of ability for explaining wine consumption merit to general consumer.					
[Requirements]					
Biochemistry, microbiology, and inorganic chemistry for radicals are required. Metabolic syndrome and lifestyle disease should be studied from related books					
[Evaluation]					
Understanding ability, Positiveness for class					
[Textbooks]					
大庭理一郎、五十嵐喜治、津久井亜紀生、共著：佐藤充克，アントシアニン-食品の色と健康-，建帛社，ISBN:4，(赤ワインと健康について詳述してある。出版年平成 12 年 5 月、@3800 円)					
[References]					
編著：西野輔翼、共著：佐藤充くら，がん抑制の食品事典，法研，ISBN:4879544604，(出版年：平成 15 年、@1800 円)					
監修：吉川敏一；共著：佐藤充くら，老化，シーエムシー出版，ISBN:4882318954，(出版年：2006 年、@5400 円)					
編著：横越英彦、共著：佐藤充くら，脳機能と栄養，幸書房，ISBN:4782102429，(出版年：2004 年、@6500 円)					
辻料理し専門学校&山田健監修；佐藤充くら共著，ISBN:978-4-06-213694-5					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Defect on excess consumption of alcohol</li> <li>2. Merit of moderate consumption of alcohol for human</li> <li>3. French paradox and wine</li> <li>4. Red wine polyphenols and their inhibition effect on LDL oxidation and relation on arteriosclerosis</li> <li>5. Radical quenching activity of red wine polyphenols</li> <li>6. Effect of polymerization of polyphenols by aging of red wine</li> <li>7. Activity of resveratrol for human</li> <li>8. Functional peptides in wines</li> <li>9. Basics of sensory analysis</li> <li>10. Feature of sensory analysis of wine</li> <li>11. Sensory analysis of sweetness, sourness, and bitterness compounds</li> <li>12. Sensory analysis of bitterness, astringency compounds</li> <li>13. Flavor components in wines</li> <li>14. Off-flavor components in wines</li> <li>15. Cultivar specific flavor components in wines</li> </ol>					



[Title]			[Instructor]		
Advanced Winery Management					
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326720	1	Biotechnology Special Educational Program on Enology and Viticulture	Intensive	/	Japanese
[Outline and purpose]					
This class deals with outline of wine business, grape production farmer management, winery management including grape growing to wine selling. Moreover, this class treats Food Sanitation Act and other laws which needed for winemaking. And marketing theory and its example, wine cultures are also discussed					
[Objectives]					
Acquiring knowledge about management techniques, Sanitation law, and marketing theory for winery					
[Requirements]					
General profit and loss control, balancing sheet should be studied					
[Evaluation]					
Understanding ability and positiveness					
[Textbooks]					
Not specify					
[References]					
Nor specify					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Outline of wine business</li> <li>2. Wine grape product managing</li> <li>3. Winery managing techniques</li> <li>4. Custom crushing</li> <li>5. Wine business clustering theory</li> <li>6. Food Sanitation Act</li> <li>7. Basic equipment and operation management</li> <li>8. Basics on sanitation</li> <li>9. Sanitation with HACCP</li> <li>10. Liquor tax law</li> <li>11. Labeling of wine bottle</li> <li>12. Outline of marketing and its example</li> <li>13. Marketing and communication</li> <li>14. Research from examples</li> <li>15. General wine culture</li> </ol>					

[Title]			[Instructor]		
Presentation I			Each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326740	2	Biotechnology Special Educational Program on Enology and Viticulture	Full-year	/	English/ Japanese
[Outline and purpose]					
The presentation is one of the most important skills for scientists and engineers. We hope that our master course students should make a presentation in academic conferences.					
[Objectives]					
To cultivate the ability of presentation.					
[Requirements]					
[Evaluation]					
Your academic supervisor evaluates the degree of attainment.					
[Textbooks]					
[References]					
[Schedule]					
This is a tutorial training through a whole year by your academic supervisor.					

[Title]			[Instructor]		
Presentation II			Each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326741	2	Biotechnology Special Educational Program on Enology and Viticulture	Full-year	/	English/ Japanese
[Outline and purpose]					
The presentation is one of the most important skills for scientists and engineers. We hope that our master course students should make a presentation in academic conferences.					
[Objectives]					
To cultivate the ability of presentation.					
[Requirements]					
[Evaluation]					
Your academic supervisor evaluates the degree of attainment.					
[Textbooks]					
[References]					
[Schedule]					
This is a tutorial training through a whole year by your academic supervisor.					

[Title]			[Instructor]		
Internship			Each teacher		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326750	2	Biotechnology	Intensive	/	English/ Japanese
[Outline and purpose]					
Reinforcing what you have learned in the master program by doing internship in public office, public corporation, and nonpublic corporation. Internships consist of two different types, which are collaborative project type and challenge type. You receive helpful guidance from a specialist in each field.					
[Objectives]					
<ol style="list-style-type: none"> <li>1. Practical training for 2 weeks.</li> <li>2. Put your education into practice</li> <li>3. Create a highly-motivated mind on education in master program</li> <li>4. Use the internship to design your career.</li> </ol>					
[Requirements]					
<ol style="list-style-type: none"> <li>1. Expertise in your particular line</li> <li>2. Common sense as a member of society</li> <li>3. Frame of mind to participate in internship representing your university</li> </ol>					
[Evaluation]					
Comprehensive evaluation					
[Textbooks]					
[References]					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Application and Procedure <ol style="list-style-type: none"> <li>(1) Collaborative project type: You fix the place and period of internship under the guidance of your academic supervisor. You make an internship proposal to administrator (teacher in charge of internship).</li> <li>(2) Challenge type: Applicants attend the internship guidance and get information on challenges from Career Center. You choose the place of internship and apply for internship to the office of curricular and educational.</li> </ol> </li> <li>2. Operation</li> <li>3. Report and Presentation</li> </ol>					

[Title]			[Instructor]		
Laboratory Training of Enology and Viticulture			Fujitoshi Yanagida / Munekazu Kishimoto / Shunji Suzuki / Tohru Okuda / Masashi Hisamoto / Hiroyuki Yamashita / Fumie Saito / others		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326760	1	Biotechnology Special Educational Program on Enology and Viticulture	Intensive	/	Japanese
[Outline and purpose]					
About enology, viticulture, a sensuality evaluation of the wine, I instruct wine production and a sensuality evaluation through training concretely.					
[Objectives]					
About an F inning of the disposal of basics of viticulture and grapes, analysis of the wine, fermentation, grape juice and the wine, I let you learn a basic technique. In addition, about a sensuality evaluation of the wine, I learn basic knowledge, technique.					
[Requirements]					
Basic plant physiology, fermentation science and basic statistics are necessary to learn viticulture, wine fermentation, the basics of sensuality evaluation.					
[Evaluation]					
Attendance: 30% Report: 70%					
[Textbooks]					
[References]					
[Schedule]					
1 The handling of yeast and the lactic acid bacterium 2 Fermentation of the wine and malolactic fermentation(MLF) 3 Fermentation and alcohol generation 4 Analysis of grape juice and the wine(Alcohol, Extract, Organic acid, Phenols, Flavors) 5 Viticulture soil analysis 6 The viticulture soil microorganisms detection, analysis 7 Disease of grape 8 Grape component analysis 9 Basic knowledge of the sensory evaluation 1 0 Characteristic of the sensory evaluation of wine 1 1 Sensory evaluation on various taste 1 2 Representation of sensory evaluation of wine 1 3 Wine and health 1 4 Wine culture 1 5 Generalization					

[Title]			[An academic supervisor ]		
Winery Internship			Masashi Hisamoto		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326770	2	Biotechnology Special Educational Program on Enology and Viticulture	Intensive	/	Japanese
[Outline and purpose]					
With the cooperation of wineries in Yamanashi prefecture, acquire basic skills in viticulture, winemaking and quality management through actual training in a winery.					
[Objectives]					
To learn the essential points of viticulture, winemaking and quality management through practice.					
[Requirements]					
Basic knowledge of viticulture and winemaking are necessary.					
[Evaluation]					
Attendance : 30% Practice report: 70%					
[Textbooks]					
No specific text.					
[References]					
None					
[Schedule]					
1. Practical training in viticulture at a winery or vineyard. 2. Practical training in winemaking at a winery. 3. Practical training in quality management at a winery.					

[Title]			[Instructor]		
Seminar in Biotechnology IA			Each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326801	1	Biotechnology	1st Semester	/	English/ Japanese
[Outline and purpose]					
Acquiring information and skills on the specialized field associated with master's thesis through reading the journals on biotechnology. Making a presentation and discussion on the results of your experiments. Cultivating the problem-solving ability and creative mind.					
[Objectives]					
To obtain the information and skills required for accomplishing the study for master's thesis. To apply the obtained information and skills to the study for master's thesis.					
[Requirements]					
[Evaluation]					
Your academic supervisor evaluates the degree of attainment.					
[Textbooks]					
[References]					
[Schedule]					
Your academic supervisor organizes the schedule with respect to each subject of study.					

[Title]			[Instructor]		
Seminar in Biotechnology IB			Each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326802	1	Biotechnology	2nd Semester	/	English/ Japanese
[Outline and purpose]					
Acquiring information and skills on the specialized field associated with master's thesis through reading the journals on biotechnology. Making a presentation and discussion on the results of your experiments. Cultivating the problem-solving ability and creative mind.					
[Objectives]					
To obtain the information and skills required for accomplishing the study for master's thesis. To apply the obtained information and skills to the study for master's thesis.					
[Requirements]					
[Evaluation]					
Your academic supervisor evaluates the degree of attainment.					
[Textbooks]					
[References]					
[Schedule]					
Your academic supervisor organizes the schedule with respect to each subject of study.					



[Title]			[Instructor]		
Seminar in Biotechnology IIA			Each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326811	1	Biotechnology	1st Semester	/	English/ Japanese
[Outline and purpose]					
Acquiring information and skills on the specialized field associated with master's thesis through reading the journals on biotechnology. Making a presentation and discussion on the results of your experiments. Cultivating the problem-solving ability and creative mind.					
[Objectives]					
To obtain the information and skills required for completing the study for master's thesis.					
[Requirements]					
[Evaluation]					
Your academic supervisor evaluates the degree of attainment.					
[Textbooks]					
[References]					
[Schedule]					
Your academic supervisor organizes the schedule with respect to each subject of study.					

[Title]			[Instructor]		
Seminar in Biotechnology IIB			Each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326812	1	Biotechnology	2nd Semester	/	English/ Japanese
[Outline and purpose]					
Acquiring information and skills on the specialized field associated with master's thesis through reading the journals on biotechnology. Making a presentation and discussion on the results of your experiments. Cultivating the problem-solving ability and creative mind.					
[Objectives]					
To obtain the information required for polishing your dissertation.					
[Requirements]					
[Evaluation]					
Your academic supervisor evaluates the degree of attainment.					
[Textbooks]					
[References]					
[Schedule]					
Your academic supervisor organizes the schedule with respect to each subject of study.					

[Title]			[Instructor]		
Research Work in Biotechnology IA			Each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326821	2	Biotechnology	1st Semester	/	English/ Japanese
[Outline and purpose]					
Research studies on biotechnology for master's thesis.					
[Objectives]					
<ol style="list-style-type: none"> <li>1. Literature searching</li> <li>2. Planning of experiment</li> <li>3. Establishment of experimental method</li> <li>4. Implementation of experiments</li> <li>5. Data analysis</li> <li>6. Presentation and discussion</li> </ol>					
[Requirements]					
[Evaluation]					
Your academic supervisor evaluates the degree of attainment.					
[Textbooks]					
[References]					
[Schedule]					
Your academic supervisor organizes the schedule with respect to each recipient.					

[Title]			[Instructor]		
Research Work in Biotechnology IB			Each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326822	2	Biotechnology	2nd Semester	/	English/ Japanese
[Outline and purpose]					
Research studies on biotechnology for master's thesis.					
[Objectives]					
<ol style="list-style-type: none"> <li>1. Literature searching</li> <li>2. Planning of experiment</li> <li>3. Establishment of experimental method</li> <li>4. Implementation of experiments</li> <li>5. Data analysis</li> <li>6. Presentation and discussion</li> </ol>					
[Requirements]					
[Evaluation]					
Your academic supervisor evaluates the degree of attainment.					
[Textbooks]					
[References]					
[Schedule]					
Your academic supervisor organizes the schedule with respect to each recipient.					

[Title]			[Instructor]		
Research Work in Biotechnology IIA			Each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326831	3	Biotechnology	1st Semester	/	English/ Japanese
[Outline and purpose]					
Research studies on biotechnology for master's thesis.					
[Objectives]					
<ol style="list-style-type: none"> <li>1. Literature searching</li> <li>2. Planning of experiment</li> <li>3. Establishment of constructive experimental method</li> <li>4. Implementation of experiments</li> <li>5. Constructive data analysis</li> <li>6. Presentation and discussion</li> <li>7. Compiling experimental results</li> </ol>					
[Requirements]					
[Evaluation]					
Your academic supervisor evaluates the degree of attainment.					
[Textbooks]					
[References]					
[Schedule]					
Your academic supervisor organizes the schedule with respect to each recipient.					

[Title]			[Instructor]		
Research Work in Biotechnology IIB			Each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
326832	3	Biotechnology	2nd Semester	/	English/ Japanese
[Outline and purpose]					
Research studies on biotechnology for master's thesis.					
[Objectives]					
<ol style="list-style-type: none"> <li>1. Literature searching</li> <li>2. Planning of experiment</li> <li>3. Establishment of constructive experimental method</li> <li>4. Implementation of experiments</li> <li>5. Constructive data analysis</li> <li>6. Presentation and discussion</li> <li>7. Compiling experimental results</li> <li>8. Writing of master's thesis.</li> </ol>					
[Requirements]					
[Evaluation]					
Your academic supervisor evaluates the degree of attainment.					
[Textbooks]					
[References]					
[Schedule]					
Your academic supervisor organizes the schedule with respect to each recipient.					

[Title]			[Instructor]		
Seminar in Wine Science IA			each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
329811	1	Special Educational Program on Enology and Viticulture	1st Semester	/	Japanese
[Outline and purpose]					
Purpose of this class is acquisition of knowledge and techniques on wine sciences. Especially, obtaining method for the wine science information and its understanding is acquired.					
[Objectives]					
Getting information using various search engine and books, and utilize them on each research					
[Requirements]					
Basal knowledge on wine science and English					
[Evaluation]					
Positiveness on lecture and presentation ability					
[Textbooks]					
Not specify					
[References]					
Not specify					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Document Searching methods1</li> <li>2. Document Searching methods 2</li> <li>3. Document Searching methods 3</li> <li>4. Reading methods on wine science papers 1</li> <li>5. Reading methods on wine science papers 2</li> <li>6. Reading methods on wine science papers 3</li> <li>7. Reading methods on wine science papers 4</li> <li>8. Acquisition of reference papers 1</li> <li>9. Acquisition of reference papers 2</li> <li>10. Acquisition of reference papers 3</li> <li>11. Presentation technique 1</li> <li>12. Presentation technique 2</li> <li>13. Presentation technique 3</li> <li>14. Presentation practice 1</li> <li>15. Presentation practice 2</li> </ol>					

[Title]			[Instructor]		
Seminar in Wine Science IB			each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
329812	1	Special Educational Program on Enology and Viticulture	2nd Semester	/	Japanese
[Outline and purpose]					
Purpose of this class is acquisition papers related to each research topics, and read them, and utilized them on research.					
[Objectives]					
Acquisition of necessary knowledge from many papers with in short time					
[Requirements]					
Basal knowledge on wine science and English, and presentation ability.					
[Evaluation]					
Positiveness on lecture, and presentation logic and its clearness					
[Textbooks]					
Not specify					
[References]					
Not specify					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Document Searching methods1</li> <li>2. Document Searching methods 2</li> <li>3. Document Searching methods 3</li> <li>4. Acquisition of reference papers 1</li> <li>5. Acquisition of reference papers 2</li> <li>6. Acquisition of reference papers 3</li> <li>7. Acquisition of reference papers 4</li> <li>8. Rapid reading of abstract 1</li> <li>9. Rapid reading of abstract 2</li> <li>10. Rapid reading of abstract 3</li> <li>11. Logical presentation techniques 1</li> <li>12. Logical presentation techniques 2</li> <li>13. Logical presentation techniques 3</li> <li>14. Logical questioning techniques 1</li> <li>15. Logical questioning techniques 2</li> </ol>					



[Title]			[Instructor]		
Seminar in Wine Science IIA			each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
329821	1	Special Educational Program on Enology and Viticulture	1st Semester	/	Japanese
[Outline and purpose]					
Acquiring of knowledge and techniques that needed for research. Understanding of background on each research topics.					
[Objectives]					
Acquiring of knowledge and techniques, and utilize them on each research activities.					
[Requirements]					
Basic wide-field knowledge that acquired during undergraduate classes					
[Evaluation]					
Positiveness on class, and presentation logic and its ability					
[Textbooks]					
Not specify					
[References]					
Not specify					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Wine science papers searching methods1</li> <li>2. Wine science papers searching methods 2</li> <li>3. Wine science papers searching methods 3</li> <li>4. Reading methods on wine science papers 1</li> <li>5. Reading methods on wine science papers 2</li> <li>6. Reading methods on wine science papers 3</li> <li>7. Reading methods on wine science papers 4</li> <li>8. Acquisition of reference papers 1</li> <li>9. Acquisition of reference papers 2</li> <li>10. Acquisition of reference papers 3</li> <li>11. Presentation technique 1</li> <li>12. Presentation technique 2</li> <li>13. Presentation technique 3</li> <li>14. Presentation practice 1</li> <li>15. Presentation practice 2</li> </ol>					

[Title]			[Instructor]		
Seminar in Wine Science IIB			each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
329822	1	Special Educational Program on Enology and Viticulture	2nd Semester	/	Japanese
[Outline and purpose]					
Proper acquisition techniques on knowledge concerning with each research topics, especially for the knowledge for summarizing their research.					
[Objectives]					
Acquisition of information from papers and books with rapid speed.					
[Requirements]					
Basic wide-field knowledge that acquired during undergraduate classes					
[Evaluation]					
Positiveness on class, and presentation logic and its ability					
[Textbooks]					
Not specify					
[References]					
Not specify					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Document Searching methods1</li> <li>2. Document Searching methods 2</li> <li>3. Document Searching methods 3</li> <li>4. Acquisition of reference papers 1</li> <li>5. Acquisition of reference papers 2</li> <li>6. Acquisition of reference papers 3</li> <li>7. Acquisition of reference papers 4</li> <li>8. Rapid reading of abstract 1</li> <li>9. Rapid reading of abstract 2</li> <li>10. Rapid reading of abstract 3</li> <li>11. Logical presentation techniques 1</li> <li>12. Logical presentation techniques 2</li> <li>13. Logical presentation techniques 3</li> <li>14. Logical questioning techniques 1</li> <li>15. Logical questioning techniques 2</li> </ol>					

[Title]			[Instructor]		
Research Work in Wine Science IA			each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
329831	2	Special Educational Program on Enology and Viticulture	1st Semester	/	Japanese
[Outline and purpose]					
Basic acquisition of research proceeding methods, including paper searching, planning of experiments, experimental method selection, analysis of data, and summarizing method.					
[Objectives]					
The object of research, methods, planning and summarizing methods are discussed with a group of academic supervisors.					
[Requirements]					
Basic wide-field knowledge that acquired during undergraduate classes					
[Evaluation]					
Positiveness, logics, and spontaneousness toward each experiments					
[Textbooks]					
Not specify					
[References]					
Not specify					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Understanding and confirmation of research purpose</li> <li>2. Understanding of background information 1</li> <li>3. Understanding of background information 2</li> <li>4. Understanding of background information 3</li> <li>5. Paper searching 1</li> <li>6. Paper searching 2</li> <li>7. Paper searching 3</li> <li>8. Planning of research 1</li> <li>9. Planning of research 2</li> <li>10. Planning or research 3</li> <li>11. Experiment practice 1</li> <li>12. Experimental practice 2</li> <li>13. Experimental practice 3</li> <li>14. Experimental practice 4</li> <li>15. Summarize and confirmation of data</li> </ol>					

[Title]			[Instructor]		
Research Work in Wine Science IB			each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
329832	2	Special Educational Program on Enology and Viticulture	2nd Semester	/	Japanese
[Outline and purpose]					
Acquisition of knowledge and techniques that needed for each experiment, especially on their analysis and understanding of data for the further study.					
[Objectives]					
Logical interpretation of data and planning of experiments					
[Requirements]					
Wide-field knowledge that acquired during undergraduate classes					
[Evaluation]					
Positiveness, logics, and spontaneousness toward each experiments					
[Textbooks]					
Not specify					
[References]					
Not specify					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Understanding and confirmation of research purpose</li> <li>2. Understanding of data 1</li> <li>3. Understanding of data 2</li> <li>4. Understanding of data 3</li> <li>5. Interpretation of data 1</li> <li>6. Interpretation of data 2</li> <li>7. Interpretation of data 3</li> <li>8. Planning of experiment 1</li> <li>9. Planning of experiment 2</li> <li>10. Planning of experiment 3</li> <li>11. Experiment practice 1</li> <li>12. Experimental practice 2</li> <li>13. Experimental practice 3</li> <li>14. Experimental practice 4</li> <li>15. Summarize and confirmation of data</li> </ol>					

[Title]			[Instructor]		
Research Work in Wine Science IIA			each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
329841	3	Special Educational Program on Enology and Viticulture	1st Semester	/	Japanese
[Outline and purpose]					
Reconfirmation of theme and purpose of experiment. Acquisition of experimental techniques and methods to reach the target on experiment					
[Objectives]					
Acquisition of knowledge and techniques that needed for each experiment, planning, methods selection, and analysis and summarize of data.					
[Requirements]					
Wide field of knowledge that obtained from undergraduate to master course classes.					
[Evaluation]					
Positiveness, logics, and spontaneousness toward each experiments					
[Textbooks]					
Not specify					
[References]					
Not specify					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Understanding and confirmation of research purpose</li> <li>2. Understanding of background information 1</li> <li>3. Understanding of background information 2</li> <li>4. Understanding of background information 3</li> <li>5. Paper searching 1</li> <li>6. Paper searching 2</li> <li>7. Paper searching 3</li> <li>8. Planning of research 1</li> <li>9. Planning of research 2</li> <li>10. Planning or research 3</li> <li>11. Experiment practice 1</li> <li>12. Experimental practice 2</li> <li>13. Experimental practice 3</li> <li>14. Experimental practice 4</li> <li>15. Summarize and confirmation of data</li> </ol>					

[Title]			[Instructor]		
Research Work in Wine Science IIB			each academic supervisor		
[Code]	[Credits]	[Program]	[Semester]	[Hours]	[Language of instruction]
329842	3	Special Educational Program on Enology and Viticulture	2nd Semester	/	Japanese
[Outline and purpose]					
Understanding of the purpose of each theme, and acquiring techniques to complete the thesis					
[Objectives]					
Logical thinking and independence as a researcher					
[Requirements]					
Wide field of knowledge that obtained master course classes.					
[Evaluation]					
Positiveness, logics, and spontaneousness toward each experiments					
[Textbooks]					
Not specify					
[References]					
Not specify					
[Schedule]					
<ol style="list-style-type: none"> <li>1. Understanding and confirmation of research purpose</li> <li>2. Understanding of background information 1</li> <li>3. Understanding of background information 2</li> <li>4. Understanding of background information 3</li> <li>5. Paper searching 1</li> <li>6. Paper searching 2</li> <li>7. Paper searching 3</li> <li>8. Planning of research 1</li> <li>9. Planning of research 2</li> <li>10. Planning or research 3</li> <li>11. Experiment practice 1</li> <li>12. Experimental practice 2</li> <li>13. Experimental practice 3</li> <li>14. Experimental practice 4</li> <li>15. Summarize and confirmation of data</li> </ol>					