

Fundamentals of Physics III			
Registration Code		0051221	Credits 2.0
Course Category		Sciences Basic	Classroom C25
Term(Semester)/Day/Period		II (1st year 2nd semester) / Mon&Wed / 2 (10:30~12:00)	
Instructor		FOONG See Kit	WOJDYLO John
Contact	Office:	ES420 [ES Building]	Science Hall 5F 517
	Phone:	052-789-2861	052-789-2307
	E-mail:	skfoong@eken.phys.nagoya-u.ac.jp	john.wojdylo@s.phys.nagoya-u.ac.jp
Target Schools (Programs)		Sc(P · C · B) · En(P · C · Au) · Ag(B)	
<p>●Aim of the Course This is the third of a series of four FP courses that cover the fundamentals of physics. It introduces the basic concepts and laws of electricity and magnetism, as well as their applications to solving a range of problems. Students will also be encouraged and guided to solve problems using different methods.</p> <p>●Course Prerequisites Fundamentals of Physics I and Calculus I, and concurrent registration of Calculus II.</p> <p>●Course Content Chapter 21: Electric Charge Chapter 22: Electric Fields Chapter 23: Gauss' Law Chapter 24: Electric Potential Chapter 25: Capacitance Chapter 26: Current and Resistance Chapter 27: Circuits Chapter 28: Magnetic Fields Chapter 29: Magnetic Fields Due to Currents Chapter 30: Induction and Inductance</p> <p>●Course Evaluation Methods Class attendance is required -- absentee must give a valid reason. A student will receive the ABSENT grade if his lecture attendance is below 75% or he does not sit for either Exam I or Exam II without valid reason. After either exam, a student who wishes to receive the ABSENT grade must see Prof. FOONG within one week after the exam. (Students do not need to submit a Course Withdrawal Form for course withdrawal.) Weightage of course components: Class participation and attendance: 5%, Lecture Assignment: 10%, Exam I & Quizzes (Chapter 21-26): 45%, Exam II & Quizzes (Chapter 27-30): 40%</p> <p>●Notice for Students This course is as intensive as (if not more) than other FP courses. You are expected to spend at least several hours per week on self-study. Repeat examination is held during the official period in September. If you have not received credits for Fundamental Physics Tutorial Iia (FPTIIa) then you should register for it.</p>			
Textbook		Fundamentals of Physics Extended 9th or 10 th Edition International Student Version with WileyPLUS Set (John Wiley & Sons)	
Reference Book		Feynman Lectures On Physics (Vol. 2) by Richard Phillips Feynman (Pearson PTR)	

Fundamentals of Physics IV			
Registration Code	0051222	Credits	2.0
Course Category	Sciences Basic	Classroom	C25
Term(Semester)/Day/Period	II (1st year 2nd semester) / Mon&Wed / 2 (10:30~12:00)		
Instructor	GELLOZ Bernard Jacques		
Contact	Office: Eng. Bld3, North wing 431 Phone: 052-789-4202 E-mail: gelloz@nuap.nagoya-u.ac.jp		
Target Schools (Programs)	Sc(P · C · B) · En(P · C · Au) · Ag(B)		
<p>●Aim of the Course This is the last of a series of four courses that cover the fundamentals of physics. It focuses on mechanical and electromagnetic waves, as well as optics. Both conceptual understanding and problem solving will be emphasized. Some applications will also be discussed. Understanding waves and optics is important as preparation for more advanced subjects, for example in quantum mechanics, chemistry, and engineering.</p> <p>●Course Prerequisites Fundamentals of Physics I & II. Concurrent registration for <i>Fundamentals of Physics III</i> is required. Registration for <i>Fundamentals of Physics Tutorial IIB</i> is recommended as it serves as tutorial for this course.</p> <p>●Course Content - Review of mechanical oscillations (part of chapter 15) - Short introduction to electromagnetic oscillations (part of chapter 30) - Fundamentals of waves and mechanical waves (chapter 15) - Introduction to Maxwell's equations (part of chapter 32) - Electromagnetic waves (chapter 33) - Images (geometrical optics) (part of chapter 34) - Optical interference (chapter 35) - Introduction to optical diffraction (part of chapter 36)</p> <p>●Course Evaluation Methods Need to submit a Course Withdrawal Request Form when students have no intention of finishing a course during the semester. Deadline for submitting this request is just before the final examination. Weightage of course components : Class attendance: 10%; Intermediate tests: 40%; Final test: 50%</p> <p>●Notice for Students With two lectures and a tutorial (if you register for it) per week, it is important to work regularly and immediately clear any misunderstanding in order to do well in the course and tutorial.</p>			
Textbook	Fundamentals of Physics Extended 10th Edition International Student Version with WileyPLUS Set (John Wiley & Sons, 2010 ISBN-13: 978-1118230725)		
Reference Book	Feynman Lectures On Physics (Vol. 2) by Richard Phillips Feynman (Pearson P T R)		

Basic Mathematics			
Registration Code	0051321	Credits	2.0
Course Category	Sciences Basic	Classroom	C35
Term(Semester)/Day/Period	II (1st year, 2nd semester) / Mon / 3 (13:00 – 14:30)		
Instructor	DEMONET Laurent		
Contact	Office: Science A-329 Phone: 052 789 5571 E-mail: demonet@math.nagoya-u.ac.jp		
Target Schools (Programs)	Le(J) • La(S) • Ec(S)		
<p>•Aim of the Course The main aims of this course are to review high school mathematics and to deepen knowledge and understanding of basic calculus and linear algebra in order to get the necessary proficiency to apply mathematics to economics and social sciences. We will focus on applied examples rather than theoretical foundations of mathematics.</p> <p>•Course Prerequisites There are no particular prerequisites for this course. Basic algebraic computation capabilities (factor expressions, simplify fractions...) will ease the learning.</p> <p>•Course Content This course will be divided in 10 chapters as follows:</p> <ol style="list-style-type: none"> 1. Lines and their slopes 2. Introduction to functions, Functions and their graphs 3. Combinations of functions 4. Transformations of functions 5. Quadratic functions 6. Polynomial functions 7. Rational functions 8. Exponential and logarithmic functions 9. Systems of equations and inequalities 10. Derivatives <p>All chapter will rely on the textbook, except 10 for which notes will be handed out.</p> <p>•Course Evaluation Methods There will be two main exams: midterm (40%) and final (40%). In addition, there will be homework each week (10%) and twelve quizzes about the lecture before (10%). The final grade will be determined by the total amount of points obtained according to the following scale: S: 90-100, A: 80-89, B: 70-79, C: 60-69, F:0-59. In case a student wants to drop off, a course withdrawal request should be submitted before the midterm exam.</p> <p>•Notice for Students We highly recommend to prepare each lecture by reading the beginning of the corresponding chapter in the textbook. This course will be more or less demanding depending on the initial level in mathematics. In case of difficulties, it is recommended to study in detail examples that are available in the textbook.</p>			
Textbook	<i>Precalculus demystified</i> , second edition Rhonda Huettenmueller McGraw Hill editor		
Reference Book	---		

Laboratory in Biology A			
Registration Code	0011371	Credits	1.5
Course Category	Sciences Basic	Classroom	Laboratory
Term(Semester)/Day/Period	II (1st year 2nd semester) / Mon / 3(13:00~14:30), 4(14:45~16:15)		
Instructor	DOI Kazuyuki, ABE Hideki		
Contact	Office : Room 302, Togo field, Bioagricultural Sciences Phone : 0561-37-0206 E-mail: kdoi@agr.nagoya-u.ac.jp		
Target Schools (Programs)	Ag(B)		
<p>●Aim of the Course The aim of this course is to provide freshman/sophomore level students with the conceptual framework, factual knowledge, and analytical skills necessary to deal critically with the rapidly changing science of biology and to understand the applications of biology. The work of the course is done via a series of laboratory exercises. Students are required to attend all the classes. Students shall inform their instructors of dates they will miss class due to an excused absence prior to the date of that anticipated absence. There are no exams, but students are required to write laboratory reports.</p> <p>●Course Prerequisites None.</p> <p>●Course Content 1-1-1 Tree Identification 1-1-2 Interspecific comparison of tree leaves 1-1-3 Tree census 1 1-1-4 Tree census 2 (Analyses of tree census data) 1-2-1 Morphology of Plant 1 (Plant tissue systems and their cellular structures) 1-2-2 Morphology of Plant 2 (Leaf Surface Structure) 1-2-3 Morphology of Plant 3 (Structure of seedlings) 1-2-4 Protein Electrophoresis (SDS-Polyacrylamide Gel Electrophoresis) 1-3-1 Morphology of Animals 1 (Dissection of the goldfish) 1-3-2 Morphology of Animals 2 (Observation of Animal Tissue Sections) 1-3-3 Vertebrate Hormones (Regulation of metamorphosis in the African clawed frog larvae) 1-3-4 Morphology of Aves (Anatomy of the digestive system and urogenital system of the quail)</p> <p>●Course Evaluation Methods Grading will be based on attendance, lab reports, and assessment of performance in the lab. The course withdrawal system is adopted. Students can withdraw from this course by submitting a request by the end of May.</p>			
Textbook	Will be introduced in the class.		
Reference Book	---		

Laboratory in Biology B			
Registration Code	0012372	Credits	1.5
Course Category	Sciences Basic	Classroom	Laboratory
Term(Semester)/Day/Period	II (1st year 2nd semester) / Tue / 3(13:00~14:30), 4(14:45~16:15)		
Instructor	KINOSHITA Toshinori, HANAFUSA Hiroshi		
Contact	Office: School of Science, Building E, Room334 Phone: 052-789-4778 E-mail: kinoshita@bio.nagoya-u.ac.jp		
Target Schools (Programs)	Sc(P · C · B) · En(P · C)		
<p>●Aim of the Course Investigation and experimentation forms the foundation of science knowledge and is one of the core skills needed for scientific inquiry. This training course is designed to help students become familiar with experimental and explorative techniques for observation, description, and analysis of plant, animal and microbiological activities at the organismal, cellular, and molecular levels.</p> <p>●Course Content</p> <ol style="list-style-type: none"> 1. Safety management for experiments 2. Microscope and plant cells 3. Floral development and shoot gravitropism in plants 4. Separation of photosynthetic pigment by paper chromatography 5. Observation of yeast cell cycle 6. Observation of <i>Caenorhabditis elegans</i>: mutation effects on morphology and behavior 7. Comparative observation of human blood cells and epithelial cells 8. Morphology and escape behavior of zebrafish larvae 9. Programmed cell death during chicken embryogenesis 10. Medaka teach us evolution and biodiversity 11. The chromosome as a data storage device 12. Characterization of the enzyme <p>●Course Evaluation Methods Valuation will be based on lab reports and assessment of performance in the lab. Notes on course withdrawal system: If you wish to withdraw from this course, you should do so by the end of May. If you attend classes more than three times (without withdrawing from the course), your grade will be either S, A, B, C, or F.</p>			
Textbook	Will be distributed in the first class of this course.		
Reference Book	---		

Fundamentals of Earth Science II			
Registration Code	0052521	Credits	2.0
Course Category	Sciences Basic	Classroom	S10
Term(Semester)/Day/Period	II (1st year 2nd semester) / Tue / 5 (16:30~18:00)		
Instructor	HUMBLET Marc Andre		
Contact	Office: Graduate School of Environmental Studies, Department of Earth and Planetary Sciences E516 Phone: 052-789-3037 E-mail: humblet.marc@f.mbox.nagoya-u.ac.jp		
Target Schools (Programs)	Sc(P · C · B) · En(P · C · Au) · Ag(B)		
<p>●Aim of the Course In the course “Fundamentals of Earth Science II” we examine the interactions between humanity and the Earth system. The Earth is a dynamic planet where the evolution of the environment and that of life are closely related. Human societies have been, and still are, profoundly influenced by climate change and catastrophic geologic events, such as volcanic eruptions and earthquakes. Entire civilizations have been decimated by droughts, and major cities have been destroyed by ground shaking, tsunamis or pyroclastic flows. Today the growing human population and its use of natural resources are affecting the environment on a global scale to an extent never attained before. Learning about the interactions between humanity and the Earth system is needed to use Earth’s limited natural resources in a sustainable manner, minimize the risks of natural hazards and envisage a safe future for us all.</p> <p>●Course Prerequisites This course has no prerequisite, but prior completion of “Fundamentals of Earth Science I” is recommended.</p> <p>●Course Content</p> <ol style="list-style-type: none"> 1. Introduction 2. Volcanoes 3. Seismology I: Earthquakes 4. Seismology II: Reconstruction of Earth’s Interior 5. Biogeochemical cycles I: The Water Cycle 6. Biogeochemical cycles II: The Carbon Cycle 7. Climate I: Introduction to the Climate System 8. Climate II: Natural Variations 9. Climate III: Recent Global Change 10. Geological Resources <p>●Course Evaluation Methods Two quizzes (multiple choice): 20% (10% each) Mid-term exam: 40% Final exam: 40%</p> <p><i>Students will be graded following the five-step S-A-B-C-F grade evaluation system.</i> <i>S: 90-100%, A: 80-89%, B: 70-79%, C:60-69%, F: 59-0%</i></p> <p><i>A student who wishes to withdraw from the course needs to submit a <u>Course Withdrawal Request Form</u> by the end of May in order to receive an “Absent” grade. This deadline does not apply to students who drop the class part-way through for an exceptional reason (e.g. illness, accident).</i></p>			
Textbook	---		
Reference Books	Understanding Earth Physical Geology		

Information Literacy			
Registration Code	0013301	Credits	2.0
Course Category	Sciences Basic	Classroom	Sub Lab A
Term(Semester)/Day/Period	II (1st year 2nd semester) / Wed / 3 (13:00~14:30)		
Instructor	KURIMOTO Hidekazu		
Contact	Office: University Headquarters Building 2, North wing, B1 Phone: 052-789-5181 (The Planning & Evaluation Office) E-mail: kuri@info.human.nagoya-u.ac.jp		
Target Schools (Programs)	Le(J) · La(S) · Ec(S)		
<p>●Aim of the Course The aim of this course is to help students master, through lectures and practical training, the fundamentals of information literacy. This refers to the ability to use information and communication technology such as computers and online networks for the gathering, transmission, organization and analysis of information. While the internet allows us to gather and transmit information at will, there are a few standard rules that need to be followed. The objectives of the course is for students to learn how to use computers and networks by fully understanding these basic rules.</p> <p>●Course Prerequisites Students must be able to use the e-mail user account listed in the Nagoya University ID Notification.</p> <p>●Course Content (01) Information Literacy overview (02) Overview of computer literacy, and word processing (03) Electronic mail and information exchange (04) Information security (05) Ethics and etiquette in a network information-based society (06) Information retrieval system (basic) (07) Searching for information on the internet (applied / translation) (08) The science and technology supporting an information-based society. (09) Information representation on webpages (basic) (10) Information representation on webpages (applied) (11) Information processing using spreadsheet software (basic) (12) Information processing using spreadsheet software (applied) (13) Information processing using spreadsheet software (advanced) (14) How to make PowerPoint presentation (15) Actual presentation using PowerPoint The course will cover the content above, but the order may vary slightly. In order to promote autonomous learning through e-learning contents, experiments will be conducted using academically effective practical methods and content.</p> <p>●Course Evaluation Methods A withdrawal system is used for students wishing to withdraw from this course. Students will be evaluated in comprehensively on performance in reporting (70%) and class participation (30%). * Details will be given during the first lecture.</p>			

●Notice for Students The enrollment capacity for G30 program is 8 students. Always carry your Nagoya University ID (account) and password with you. The practical training classes are inter-related and lateness or absence will interfere with the class.	
Textbook	None (Course-related links) http://www.human.nagoya-u.ac.jp/~kuri/lect/nulias.html
Reference Book	Will be given accordingly during class. The topics being covered in each lecture are posted on the web page.

Laboratory in Chemistry			
Registration Code	0053321	Credits	1.5
Course Category	Sciences Basic	Classroom	Laboratory
Term(Semester)/Day/Period	II (1st year 2nd semester) / Wed / 3 (13:00~14:30), 4(14:45~16:15)		
Instructor	FISCHER Berthold, BUTKO Peter, ITO Hideto		
Contact	Course Master : FISCHER Berthold Office : SA Building-318-2 (Science & Agriculture) Phone : 052-789-5041 E-mail: fischer@chem.nagoya-u.ac.jp		
Target Schools (Programs)	Sc (P · C · B) · En (P · C · Au) · Ag (B)		
<p>●Aim of the Course The objective of this course is to learn how to effectively perform experiments in a detailed oriented manner including careful note taking of the procedures, findings, and questions that may arise from the experiments. The other objective is to clearly and concisely convey to others the findings of the experiments that support your conclusion. Motto: perform the experiments by yourself, visually observe and record what happened in the experiments, and report the results clearly.</p> <p>●Course Prerequisites Students must have taken, or be taking concurrently, at least one of the following courses: Fundamentals of Chemistry 1, Fundamentals of Chemistry 2.</p> <p>●Course Contents week 1: Orientation and Safety Walkthrough. week 2: Lecture 1 Reaction of Inorganic Ions and Ion Exchange Equilibrium. week 3: Experiment 1 a. Estimation of Liquid Quantity. b. Dissolution of Salts. c. Water Soluble Salts and Solubility. week 4: Experiment 2 a. Reaction of Metal Ions with Hydrogen Sulfide. b. Metal Hydroxides. week 5: Experiment 3 a. Separation of Inorganic Ions and their Identification. week 6: Lecture 2 Synthesis of Organic Compounds and Inorganic Compounds, Volumetric Analysis and Titration. week 7: Experiment 4 a. Synthesis of Acetylsalicylic Acid. b. Measurement of Melting Point. week 8: Experiment 5 a. Synthesis of Potassium Trioxalate Ferrate (III) Trihydrate. b. Photochemical Reaction. week 9: Experiment 6 a. Titration of Monovalent Acids. week 10: Lecture 3 Energy of Electromagnetic Waves and Spectra, Rate of Chemical Reaction and Energy. week 11: Experiment 7 a. Atomic Spectra and Atom Structure. b. Spectra of Various Light Sources. week 12: Experiment 8 a. Absorption Spectrum of Phenolphthalein. b. Determination of Concentration by Absorption Photometry. week 13: Experiment 9 a. Chemical Oscillation Reactions.</p>			

●Course Evaluation Methods

Attendance is necessary for every week. In the event of a missed class due to a serious illness, accident or family emergency, compelling **written** documentation of the reason for the absence will be required. Tardiness will negatively impact your grade. You must submit your assignment every week. Plagiarism of assignments will not be tolerated. The Nagoya University course withdrawal system is adopted. Students need to submit a Course Withdrawal Request Form when students have no intention of finishing the course during the semester.

Grade "S": 100-90% (90 or more points), "A": 89-80% (89 - 80 pts), "B": 79-70% (79 - 70 pts), "C": 69-60% (69 - 60 pts), "F": 59-0% (below 59 pts).

WARNING: Missing more than three classes (it does not matter whether excused or not) means automatically failing course.

Textbook	Introductory Chemistry Laboratory Manual, Shizuaki Murata, Fumi Urano, and Masahiro Yoshimura, Hideto Ito (Nagoya University, 2015)
Reference Book	---

Fundamentals of Biology II			
Registration Code	0054223	Credits	2.0
Course Category	Sciences Basic	Classroom	A31
Term(Semester)/Day/Period	II (1st year 2nd semester) / Thu / 2 (10:30~12:00)		
Instructor	VASSILEVA Maria		
Contact	Office : School of Science, building E, room 202 Phone : 052-789-3530 E-mail : mnvassileva@bio.nagoya-u.ac.jp		
Target Schools (Programs)	Sc(P · C · B) · En(C · Au) · Ag(B)		
<p>●Aim of the Course This course's main focus is to provide students with working understanding on how human body functions and the ability to use this knowledge in everyday health-related situations. The course focuses on human anatomy and physiology, but also on how organ systems' organization has changed throughout animals' evolution. Further, short introduction is given on plant morphology and physiology, as well as on basic concepts of ecology. These sections will allow students to critically evaluate agricultural and ecological issues.</p> <p>The course emphasizes on conceptual understanding of the biological topics discussed, rather than on memorization of terms and facts. Course assignments are prepared with the goal of providing an opportunity to practice conceptual and analytical thinking.</p> <p>●Course Prerequisites There is <u>no prerequisite knowledge for this course</u>, so even those who didn't take Fundamentals of Biology 1, or didn't study Biology in high school, are encouraged to join.</p> <p>●Course Content</p> <ol style="list-style-type: none"> 1. Animals anatomy and physiology 2. Plants morphology and physiology 3. Ecology <p>●Course Evaluation Methods Evaluation is based on in-class participation, written assignments and two exams.</p> <ul style="list-style-type: none"> * In-class participation will consist of participation in discussions, and quality of presentations and group assignments. Exams will emphasize on analytical and problem-solving skills. * Students will be graded using the 5-step (S/A/B/C/F) grade evaluation system. * This course uses the course withdrawal system. Registered students need to submit a Course Withdrawal Request Form when students have no intention of finishing the course during the semester. This can be done at any time during the course. <p>●Notice for Students</p> <ul style="list-style-type: none"> * Mastering Biology (www.masteringbio.com) is an online system that accompanies the main textbook for this course. <u>This system will not be integrated into the course assessment methods.</u> The choice of acquiring an access and using it will be left to the discrepancy of each individual student. * Students are expected to read the appropriate textbook chapter before class; written assignments will be constructed in a way to stimulate this preparation. Classes will emphasize on discussions and problem-solving questions. 			

Textbook	Campbell Biology: Concepts & Connections, 7th Ed. or later Jane B. Reece / Martha R. Taylor / Eric J. Simon / Jean L. Dickey Benjamin Cummings, 2011 (The same textbook as in Fundamentals of Biology 1)
Reference Book	OpenStax Biology Free downloadable textbook (http://openstaxcollege.org) This is an excellent alternative to the main textbook for the course. Other free online resources will be introduced at the beginning of the course.

Calculus II			
Registration Code	0055221	Credits	2.0
Course Category	Sciences Basic	Classroom	A28
Term(Semester)/Day/Period	II (1st year 2nd semester) / Fri / 2(10:30~12:00)		
Instructor	RICHARD Serge Charles		
Contact	Office: : Room 237, Science Building A E-mail: richard@math.nagoya-u.ac.jp Web site : http://www.math.nagoya-u.ac.jp/~richard/spring2017.html		
Target Schools (Programs)	Le(J) · La(S) · Ec(S) · Sc(P · C · B) · En(P · C · Au) · Ag(B)		
<p>●Aim of the Course: Analysis is the field of mathematics that describes and analyzes quantitative changes, and the central methods are differential and integral calculus. These methods are essential techniques in natural science, and have recently found increasing applications also in social sciences. The aim of the second half of this one-year course is to provide a solid understanding of functions of several real variables.</p> <p>●Course Prerequisites: Some notions on functions of one variable, as seen in Calculus I. A basic knowledge of linear algebra will be an asset.</p> <p>●Course Content: The basic notions related to the study of functions of several variables, as for example: partial derivatives, maximum and minimum, implicit functions theorem, multiple integrals, change of variables, Jacobian matrix, surface and line integrals. Some elements of vector calculus will also be introduced.</p> <p>●Course Evaluation Methods: The final grade will be determined by quizzes (30%), the midterm (30%) and a final exam (40%). The grading scale will be S: 90-100, A: 80-89, B: 70-79, C: 60-69, F: 0-59. It is necessary to submit a Course Withdrawal Request Form when the student has no intention of finishing the course during the semester.</p> <p>●Notice for Students: It is strongly encouraged to attend the Mathematics Tutorial IIa which is linked to this course.</p>			
Textbook	----		
Reference Book	Free reference books or lecture notes are available on the website of the course.		