

2017 (Term I · III · V)
School Specific Course Syllabus
For International Programs
(School of Agricultural Sciences)

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|-------------------------|--------------------|--------------------------------|------------------------|
| 科目名 | Course Title | | |
| Mathematics Tutorial Ia | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 All program | | 1st | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Exercise | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester,Day & Period |
| 0910825 | | Fall semester Tue : 4 | |
| 単位数 | Credit | 科目区分 | Course type |
| 1 | | | |
| 担当教員 | Instructor | RICHARD Serge charles | |
| 所属研究室 | Laboratory | Graduate School of Mathematics | |
| 連絡先 | Contact | richard@math.nagoya-u.ac.jp | |
| 居室 | Room | Sci. Bldg A, 237 | |

| | |
|---|---------------------------------------|
| 講義の目的とねらい | Course purpose |
| The aim of this course is to deepen the understanding of calculus and to cultivate the ability to apply mathematical knowledge. The course is mainly intended for students taking Calculus I. | |
| 履修要件 | Prerequisite |
| | |
| 履修取り下げについて | Course withdrawal |
| <可否> Possible <条件> Submit a Course Withdrawal Request Form when the student has no intention of finishing the course during the semester. | |
| 成績評価 | Grading |
| Your final grade will be determined by homework (50%) and quizzes (50%). | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| The grading scale will be: S: 90-100, A: 80-89, B: 70-79, C: 60-69, F: 0-59. | |
| 関連する科目 | Related courses |
| Calculus I, registration code : 0064511. | |
| 教室 | Class room |
| Check the Course Timetable. Room 407 of Science Building A. | |

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| 授業内容 | Content |
| <p>Exercises sheets will be provided each week before the tutorial, and will be available on the web site of the course. Homework will be due every week during the tutorial. For more information:</p> <p>http://www.math.nagoya-u.ac.jp/~richard/fall2017.html</p> | |
| 教科書 | Textbook |
| | |
| 参考書 | Recommended reading |
| | |
| 連絡方法 | Contact method |
| <p>Email to : richard@math.nagoya-u.ac.jp</p> | |
| その他 | Remarks |
| <p>*See Course List and Graduation Requirements for your program for your enrollment year.</p> | |

| | | |
|-------------------------|--------------------|------------------------|
| 科目名 | Course Title | |
| Mathematics Tutorial Ib | | |
| 学科・専攻 | Department/Program | 受講年次 |
| G30 All program | | Grade |
| | | 1st |
| 授業形態 | Class style | 必修・選択の別 |
| | | Compulsory or Elective |
| Exercise | | * See "Remarks" |
| 時間割コード | Registration code | 開講期・曜日・時限 |
| 0910826 | | Semester, Day & Period |
| | | Fall semester Tue : 4 |
| 単位数 | Credit | 科目区分 |
| 1 | | Course type |
| | | |
| 担当教員 | Instructor | DARPOE Erik Olof |
| 所属研究室 | Laboratory | |
| 連絡先 | Contact | |
| 居室 | Room | |

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|---|---------------------------------------|
| 講義の目的とねらい | Course purpose |
| The aim of this course is to provide essential mathematical knowledge necessary to further study mathematics and other sciences at university level. The course is intended for students taking Linear algebra I. | |
| 履修要件 | Prerequisite |
| | |
| 履修取り下げについて | Course withdrawal |
| <可否> Possible <条件> A student may withdraw from the course at any time before the final examination. | |
| 成績評価 | Grading |
| The examination of this course coincides with the examination of the course Linear Algebra I. | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| Any student who does not participate in the final exam will receive the grade "Absent". | |
| 関連する科目 | Related courses |
| Linear Algebra I | |
| 教室 | Class room |
| Check the Course Timetable. | |

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|---|---------------------|
| 授業内容 | Content |
| Same as Linear Algebra I. | |
| 教科書 | Textbook |
| | |
| 参考書 | Recommended reading |
| Linear Algebra with Applications, fourth edition, Otto Bretscher, Edition: Pearson, 2009. | |
| 連絡方法 | Contact method |
| Email: darpo@math.nagoya-u.ac.jp | |
| その他 | Remarks |
| *See Course List and Graduation Requirements for your program for your enrollment year. It is strongly recommended to register also to Linear algebra I. | |

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|------------------------|--------------------|--------------------------------|------------------------|
| 科目名 | Course Title | | |
| Mathematics Tutorial I | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 All program | | 1st | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Exercise | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester,Day & Period |
| 0910801 | | Fall semester Tue : 4 | |
| 単位数 | Credit | 科目区分 | Course type |
| 2 | | | |
| 担当教員 | Instructor | RICHARD Serge charles | |
| 所属研究室 | Laboratory | Graduate School of Mathematics | |
| 連絡先 | Contact | richard@math.nagoya-u.ac.jp | |
| 居室 | Room | Sci. Bldg A, 237 | |
| 担当教員 | Instructor | DARPOE Erik Olof | |
| 所属研究室 | Laboratory | Graduate School of Mathematics | |
| 連絡先 | Contact | darpo@math.nagoya-u.ac.jp | |
| 居室 | Room | Sci. Bldg A, 331 | |

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|---|---------------------------------------|
| 講義の目的とねらい | Course purpose |
| The aim of this course is to deepen the understanding of calculus and of linear algebra, and to cultivate the ability to apply mathematical knowledge. The course is mainly intended for students taking Calculus I and linear algebra I. | |
| 履修要件 | Prerequisite |
| | |
| 履修取り下げについて | Course withdrawal |
| <可否> Possible <条件> Submit a Course Withdrawal Request Form when the student has no intention of finishing the course during the semester. | |
| 成績評価 | Grading |
| Your final grade will be determined by homework (50%) and quizzes (50%). | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| The grading scale will be: S: 90-100, A: 80-89, B: 70-79, C: 60-69, F: 0-59. | |

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| 関連する科目 | Related courses |
| | |
| 教室 | Class room |
| Check the Course Timetable. Science Building A, rooms 407 & 408. | |
| 授業内容 | Content |
| Exercises sheets will be provided each week before the tutorial. Homework are due the following week. | |
| 教科書 | Textbook |
| | |
| 参考書 | Recommended reading |
| | |
| 連絡方法 | Contact method |
| | |
| その他 | Remarks |
| *See Course List and Graduation Requirements for your program for your enrollment year. | |

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|---------------------------------|--------------------|----------------------------------|------------------------|
| 科目名 | Course Title | | |
| Fundamental Physics Tutorial Ia | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 Physics | | 1st | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Exercise | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester, Day & Period |
| 0910822 | | Fall semester Fri : 3 | |
| 単位数 | Credit | 科目区分 | Course type |
| 1 | | | |
| 担当教員 | Instructor | FOONG See Kit | |
| 所属研究室 | Laboratory | E-lab | |
| 連絡先 | Contact | skfoong@eken.phys.nagoya-u.ac.jp | |
| 居室 | Room | ES420 | |
| 担当教員 | Instructor | TAMA Florence Muriel | |
| 所属研究室 | Laboratory | computational biophysics | |
| 連絡先 | Contact | florence.tama@nagoya-u.jp | |
| 居室 | Room | ITbM - 304 | |

| | |
|--|-------------------|
| 講義の目的とねらい | Course purpose |
| <p>This is the companion course to the lecture course Fundamentals of Physics I on introductory calculus-based mechanics. It offers exercises to cultivate the ability to analyze and solve problems, as well as presentation and discussion skills so as to participate effectively in discussions among peers and instructors, leading to mastering the concepts introduced in the lecture course. Therefore students taking the lecture course are expected to register for this tutorial course.</p> | |
| 履修要件 | Prerequisite |
| <p>No prerequisite is required; however, students without a good background in high school physics and basic calculus must be prepared to spend more time on this course, and are advised to take this into consideration when deciding their course load.</p> | |
| 履修取り下げについて | Course withdrawal |
| <p><可否> Possible <条件> Students must follow the standard procedure for course withdrawal</p> | |
| 成績評価 | Grading |
| <p>Attendance and participation (40%) Weekly assignments and Quizzes (60%)</p> | |

| | |
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| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| Class attendance is required. Absentee must give a valid reason supported by documents. A student will receive an " Absent " grade if he is absent for more than 2 times without valid reason. | |
| 関連する科目 | Related courses |
| Fundamentals of Physics I; Calculus I | |
| 教室 | Class room |
| Check the Course Timetable. ES034 and ES035 | |

| | |
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| 授業内容 | Content |
| See syllabus for Fundamentals of Physics I. | |

| | |
|---|---------------------|
| 教科書 | Textbook |
| Students are required to purchase the online Fundamentals of Physics Extended 10th Edition International Student Version with WileyPLUS Set (John Wiley & Sons, 2010 ISBN:9780470576083) [However, do not purchase it before the first class meeting where further details will be announced in class] | |
| 参考書 | Recommended reading |
| | |
| 連絡方法 | Contact method |
| By appointment. Please email instructors to make an appointment. | |
| その他 | Remarks |
| <p>*See Course List and Graduation Requirements for your program for your enrollment year.</p> <ul style="list-style-type: none"> • Concurrent registration for Fundamentals of Physics I is required. • Students are expected to participate actively in class activities throughout the course. | |

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|---------------------------------|--------------------|---------------------------|------------------------|
| 科目名 | Course Title | | |
| Fundamental Physics Tutorial Ib | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 Physics | | 1st | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Exercise | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester, Day & Period |
| 0910823 | | Fall semester Fri : 3 | |
| 単位数 | Credit | 科目区分 | Course type |
| 1 | | | |
| 担当教員 | Instructor | TAMA Florence Muriel | |
| 所属研究室 | Laboratory | | |
| 連絡先 | Contact | florence.tama@nagoya-u.jp | |
| 居室 | Room | | |
| 担当教員 | Instructor | GELLOZ Bernard Jacques | |
| 所属研究室 | Laboratory | | |
| 連絡先 | Contact | | |
| 居室 | Room | | |

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| 講義の目的とねらい | Course purpose |
| This is a companion course to Fundamental Physics II, and offers practical exercises for mastering the concepts introduced in the lecture courses. Students taking the lecture courses should also take this tutorial class | |
| 履修要件 | Prerequisite |
| | |
| 履修取り下げについて | Course withdrawal |
| <可否> Possible <条件> Students need to submit a Course Withdrawal Request Form if they have no intention of finishing a course during the semester. | |
| 成績評価 | Grading |
| Weekly tutorials, quizzes, attendance (Weighting to be advised) | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |

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| <p>Class attendance is required. Absentees must give a valid reason (e.g. doctor ' s certificate). A student who is absent from more than 3 sessions will receive zero for the semester attendance mark. The “ Absent ” grade is reserved for students who withdraw until just after the final quiz. After that day, a letter grade will be awarded based on marks earned from all assessment during the semester.</p> | |
| 関連する科目 | Related courses |
| Calculus I, Calculus II, Linear Algebra I, Linear Algebra II, Fundamentals of Physics I, III & IV | |
| 教室 | Class room |
| <p>Check the Course Timetable. Check the Course Timetable</p> | |
| 授業内容 | Content |
| See syllabus for Fundamental Physics II. | |
| 教科書 | Textbook |
| Fundamentals of Physics Extended 10th Edition International Student Version with WileyPLUS Set (John Wiley & Sons, 2010 ISBN: 9781118230749) | |
| 参考書 | Recommended reading |
| | |
| 連絡方法 | Contact method |
| By email: florence.tama@nagoya-u.jp | |
| その他 | Remarks |
| <p>*See Course List and Graduation Requirements for your program for your enrollment year. *See "Course List and Graduation Requirements" for your program for your enrollment year.</p> <ul style="list-style-type: none"> - No pre-requisite is required; however, students without a good background in high school physics and basic calculus are expected to spend more time on this course, and are advised to take this into consideration when deciding their course load. - Concurrent registration for Fundamental Physics II is required. - Students are expected to participate actively in class activities throughout the course. | |

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|--------------------------------|--------------------|----------------------------------|
| 科目名 | Course Title | |
| Fundamental Physics Tutorial I | | |
| 学科・専攻 | Department/Program | 受講年次 |
| G30 Physics | | 1st |
| 授業形態 | Class style | 必修・選択の別 |
| Exercise | | Compulsory or Elective |
| 時間割コード | Registration code | 開講期・曜日・時限 |
| 0910802 | | Semester, Day & Period |
| 単位数 | Credit | 科目区分 |
| 2 | | Course type |
| 担当教員 | Instructor | FOONG See Kit |
| 所属研究室 | Laboratory | E-lab |
| 連絡先 | Contact | skfoong@eken.phys.nagoya-u.ac.jp |
| 居室 | Room | ES420 |
| 担当教員 | Instructor | GELLOZ Bernard Jacques |
| 所属研究室 | Laboratory | |
| 連絡先 | Contact | |
| 居室 | Room | |

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| 講義の目的とねらい | Course purpose |
| <p>This is the companion course to the lecture course Fundamentals of Physics I & Fundamentals of Physics II for students who were enrolled in 2011, 2012 and 2013. It offers exercises to cultivate the ability to analyze and solve problems, as well as presentation and discussion skills so as to participate effectively in discussions among peers and instructors, leading to mastering the concepts introduced in the lecture course. Therefore students taking the lecture courses are expected to register for this tutorial course.</p> | |
| 履修要件 | Prerequisite |
| <p>No prerequisite is required; however, students without a good background in high school physics and basic calculus must be prepared to spend more time on this course, and are advised to take this into consideration when deciding their course load.</p> | |
| 履修取り下げについて | Course withdrawal |
| <p><可否> Possible <条件> Students must follow the standard procedure for course withdrawal</p> | |
| 成績評価 | Grading |
| <p>Attendance and participation (40%) Weekly assignments and Quizzes (60%)</p> | |

| | |
|--|---------------------------------------|
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| Class attendance is required. Absentee must give a valid reason supported by documents. A student will receive an " Absent " grade if he is absent for more than 2 times without valid reason. | |
| 関連する科目 | Related courses |
| Fundamentals of Physics I, Fundamentals of Physics II & Calculus I | |
| 教室 | Class room |
| Check the Course Timetable. ES034 and ES035 | |

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|---|---------|
| 授業内容 | Content |
| See syllabus for Fundamentals of Physics I, and Fundamentals of Physics II. | |

| | |
|--|----------|
| 教科書 | Textbook |
| Students are required to purchase the online Fundamentals of Physics Extended 10th Edition International Student Version with WileyPLUS Set (John Wiley & Sons, 2010 ISBN:9780470576083) [However, do not purchase it before the first class meeting where further details will be announced in class] | |

| | |
|-----|---------------------|
| 参考書 | Recommended reading |
| | |

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| 連絡方法 | Contact method |
| By appointment. Please email instructors to make an appointment. | |

| | |
|--|---------|
| その他 | Remarks |
| <p>*See Course List and Graduation Requirements for your program for your enrollment year.</p> <ul style="list-style-type: none"> • Concurrent registration for Fundamentals of Physics I and II is required. • Students are expected to participate actively in class activities throughout the course. | |

| | | | |
|----------------|--------------------|------------------------------|------------------------|
| 科目名 | Course Title | | |
| Biochemistry I | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 Biology | | 2nd | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Lecture | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester, Day & Period |
| 0910805 | | Fall semester Mon : 1 | |
| 単位数 | Credit | 科目区分 | Course type |
| 2 | | | |
| 担当教員 | Instructor | MIZUKAMI Yukiko | |
| 所属研究室 | Laboratory | PSR: Plant Size Regulation | |
| 連絡先 | Contact | ymizukami@bio.nagoya-u.ac.jp | |
| 居室 | Room | SA333 | |

| | |
|--|---------------------------------------|
| 講義の目的とねらい | Course purpose |
| This course provides students with a comprehensive introduction to the chemical evolution of biomolecules and their contributions to life. Topics discussed include the origin of life; chemical and physical properties of water; chemical, structural, and functional properties of nucleotides, nucleic acids, amino acids, and proteins. | |
| 履修要件 | Prerequisite |
| You MUST pass Fundamentals of Biology I (Term I) before taking this course. | |
| 履修取り下げについて | Course withdrawal |
| <可否> Possible <条件> With a written request sent to the instructor before/on October 23 via e-mail, you can cancel a course assignment without it appearing on your record. | |
| 成績評価 | Grading |
| Grading materials: Homework (10%); Attendance and performance (15%); Exams (75%). Grading scale: S=90-100%; A=80-89%; B=70-79%; C=60-69%; F=below 59%. | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| No " Absent " grade will be given in this course. Students who fail to attend 3 or more lectures will immediately get an " F (Fail) " grade. | |
| 関連する科目 | Related courses |
| Biochemistry II, III, and IV (Terms IV, V, and VI, respectively) | |
| 教室 | Class room |

Check the Course Timetable.
A407 (Science building A, room 407)

授業内容 Content

PART I: INTRODUCTION

1. Life, Cells and Thermodynamics (1): The origin of Life.
2. Life, Cells and Thermodynamics (2): Cellular architecture; Thermodynamics.
3. Water: Physical & chemical properties of water.

Part II: BIOMOLECULES

4. DNA Structure, Function, and Engineering (1): Nucleotides; Nucleic acid structure and function.
5. DNA Structure, Function, and Engineering (2): Nucleic acid sequencing; Manipulating DNA.
6. Amino Acids: Amino acid structure; Stereochemistry; Amino acid derivatives.
7. Proteins: Primary structure (1): Polypeptide diversity; Protein purification and analysis.
8. Proteins: Primary structure (2): Polypeptide sequencing; Protein evolution.
9. Proteins: 3D structure (1): Secondary and tertiary structures; Quaternary structure and symmetry.
10. Proteins: 3D structure (2): Protein stability; Protein folding.
11. Physical Activities of Proteins (1): Myoglobin and hemoglobin.
12. Physical Activities of Proteins (2): Actin and myosin; Antibodies.

教科書 Textbook

Principles of Biochemistry (International Students Version, 2012)
by Voet, D., Voet, J.G. and Pratt, C.W., Wiley and son, Inc. USA. ISBN: 78-11809244-6

参考書 Recommended reading

Will be introduced in class

連絡方法 Contact method

Via e-mail only

その他 Remarks

*See Course List and Graduation Requirements for your program for your enrollment year.
Office hours: Tuesday, 2:00 pm – 4:00 pm, or by an appointment via e-mail

See "Course List and Graduation Requirements" for your program for your enrollment year.

| | | | |
|--------------------------------------|--------------------|------------------------------|------------------------|
| 科目名 | Course Title | | |
| Physiology and Developmental Biology | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 Biology | | 2nd | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Lecture | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester, Day & Period |
| 0913018 | | Fall semester Mon : 3 | |
| 単位数 | Credit | 科目区分 | Course type |
| 2 | | | |
| 担当教員 | Instructor | MIZUKAMI Yukiko | |
| 所属研究室 | Laboratory | PSR: Plant Size Regulation | |
| 連絡先 | Contact | ymizukami@bio.nagoya-u.ac.jp | |
| 居室 | Room | SA333 | |

| | |
|--|---------------------------------------|
| 講義の目的とねらい | Course purpose |
| <p>This course outlines the fundamentals of plant physiology, beginning with a brief introduction of general concepts in physiology to clarify the common or distinct aspects of physiological strategies used by animals and plants. Topics discussed in the plant physiology section include physiological principles of plant structure, growth, and development; transport and translocation of water in plants; responses of plant cells to light and other external signals; and strategies for carbon dioxide fixation.</p> | |
| 履修要件 | Prerequisite |
| <p>You MUST pass Fundamentals of Biology I & II (Terms I & II, respectively) courses before taking this course.</p> | |
| 履修取り下げについて | Course withdrawal |
| <p><可否> Possible <条件> With a written request sent to the instructor before/on October 23 via e-mail, you can cancel a course assignment without it appearing on your record.</p> | |
| 成績評価 | Grading |
| <p>Grading materials: Homework & essay (15%); Attendance and performance (15%); Exams (70%). Grading scale: S=90-100%; A=80-89%; B=70-79%; C=60-69%; F=below 59%.</p> | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| <p>No " Absent " grade will be given in this course. Students who fail to attend 3 or more lectures will immediately get an " F (Fail) " grade.</p> | |
| 関連する科目 | Related courses |
| <p>Plant Physiology (Term V)</p> | |

| | |
|--|-------------------|
| 教室 | Class room |
| Check the Course Timetable. Science Building A, room 407 (A407) | |

| | |
|--|----------------|
| 授業内容 | Content |
| PART I: General Concepts in Physiology | |
| <ol style="list-style-type: none"> 1. Introduction: What is physiology & developmental biology? 2. The organization of the body: The principal organ systems in animals and plants 3. Animal development: Gametogenesis, embryogenesis, and organogenesis of Drosophila | |
| PART II: Plant Growth and Development | |
| <ol style="list-style-type: none"> 4. Principles of plant life: Unique patterns in plant development 5. Plant development (1): Embryonic and post embryonic development 6. Plant development (2): Reproductive development 7. Plant development (3): The control of flowering 8. Water in plant life: Transport and translocation of water 9. Light, photoreceptors, and plant growth (1): Red light reception 10. Light, photoreceptors, and plant growth (2): Blue light reception 11. Photosynthesis (1) The light reactions 12. Photosynthesis (2) The carbon reactions | |

| | |
|------------|-----------------|
| 教科書 | Textbook |
| None | |

| | |
|---|----------------------------|
| 参考書 | Recommended reading |
| <ol style="list-style-type: none"> 1. Plant Physiology: International Edition (5th revised edition, 2010) by Taiz, L. and Zeiger, E., Sinauer Associates Inc., USA. ISBN: 0878935657 2. Principles of Development (4th edition, 2010) by Wolpert, L. and Tickle, C., Oxford University Press, USA. ISBN: 0199554285 3. Human Physiology: The Basis of Medicine (3rd edition, 2006) by Pocock, G. & Richards, C.D., Oxford University Press, USA. ISBN: 0198568789. 4. Principles of Developmental Biology (2003) by Wilt, F.H. & Hake, S., W W Norton & Co Inc (Np). ISBN: 0393974308 | |

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| 連絡方法 | Contact method |
| via e-mail only | |

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| その他 | Remarks |
| <p>*See Course List and Graduation Requirements for your program for your enrollment year. Office hours: Tuesday, 2:00 pm – 4:00 pm, or by an appointment via e-mail.</p> <p>See "Course List and Graduation Requirements" for your program for your enrollment year.</p> | |

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|--------------|--------------------|------------------------------|------------------------|
| 科目名 | Course Title | | |
| Physiology I | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 Biology | | 2nd | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Lecture | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester, Day & Period |
| 0913002 | | Fall semester Mon : 3 | |
| 単位数 | Credit | 科目区分 | Course type |
| 2 | | | |
| 担当教員 | Instructor | MIZUKAMI Yukiko | |
| 所属研究室 | Laboratory | PSR: Plant Size Regulation | |
| 連絡先 | Contact | ymizukami@bio.nagoya-u.ac.jp | |
| 居室 | Room | SA333 | |

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| 講義の目的とねらい | Course purpose |
| <p>This course outlines the fundamentals of plant physiology, beginning with a brief introduction of general concepts in physiology to clarify the common or distinct aspects of physiological strategies used by animals and plants. Topics discussed in the plant physiology section include physiological principles of plant structure, growth, and development; transport and translocation of water in plants; responses of plant cells to light and other external signals; and strategies for CO₂ fixation.</p> | |
| 履修要件 | Prerequisite |
| <p>You MUST pass Fundamentals of Biology I & II (Terms I & II, respectively) courses before taking this course.</p> | |
| 履修取り下げについて | Course withdrawal |
| <p><可否> Possible <条件> With a written request sent to the instructor before/on October 23 via e-mail, you can cancel a course assignment without it appearing on your record.</p> | |
| 成績評価 | Grading |
| <p>Grading materials: Homework & essay (15%); Attendance and performance (15%); Exams (70%). Grading scale: S=90-100%; A=80-89%; B=70-79%; C=60-69%; F=below 59%.</p> | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| <p>No " Absent " grade will be given in this course. Students who fail to attend 3 or more lectures will immediately get an " F (Fail) " grade.</p> | |
| 関連する科目 | Related courses |
| <p>Plant Physiology (Term V)</p> | |

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| 教室 | Class room |
| Check the Course Timetable. Science Building A, room 407 (A407) | |
| 授業内容 | Content |
| PART I: General Concepts in Physiology 1. Introduction: What is physiology? 2. The organization of the body: The principal organ systems in animals and plants 3. Animal development: Gametogenesis, embryogenesis, and organogenesis of Drosophila PART II: Plant Growth and Development 4. Principles of plant life: Unique patterns in plant development 5. Plant development (1): Embryonic and post-embryonic development 6. Plant development (2): reproductive development 7. Plant development (3): The control of flowering 8. Water in plant life: Transport and translocation of water 9. Light, photoreceptors, and plant growth (1): Red light reception 10. Light, photoreceptors, and plant growth (2): Blue light reception 11. Photosynthesis (1) The light reactions 12. Photosynthesis (2) The carbon reactions | |
| 教科書 | Textbook |
| None | |
| 参考書 | Recommended reading |
| 1. Plant Physiology: International Edition (5th revised edition, 2010) by Taiz, L. and Zeiger, E., Sinauer Associates Inc., USA. ISBN: 0878935657 2. Principles of Development (4th edition, 2010) by Wolpert, L. and Tickle, C., Oxford University Press, USA. ISBN: 0199554285 3. Human Physiology: The Basis of Medicine (3rd edition, 2006) by Pocock, G. & Richards, C.D., Oxford University Press, USA. ISBN: 0198568789. 4. Principles of Developmental Biology (2003) by Wilt, F.H. & Hake, S., W W Norton & Co Inc (Np). ISBN: 0393974308 | |
| 連絡方法 | Contact method |
| via e-mail only | |
| その他 | Remarks |
| *See Course List and Graduation Requirements for your program for your enrollment year. Office hours: Tuesday, 2:00 pm – 4:00 pm, or by an appointment via e-mail See "Course List and Graduation Requirements" for your program for your enrollment year. | |

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| 科目名 | Course Title | | |
| Analytical Chemistry | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 Chemistry | | 2nd | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Lecture | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester, Day & Period |
| 0910806 | | Fall semester Tue : 1 | |
| 単位数 | Credit | 科目区分 | Course type |
| 2 | | | |
| 担当教員 | Instructor | FISCHER Berthold | |
| 所属研究室 | Laboratory | | |
| 連絡先 | Contact | Phone: 789-5041 E-mail: fischer@chem.nagoya-u.ac.jp | |
| 居室 | Room | SA Building-318-2 (Science & Agriculture) | |

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| 講義の目的とねらい | Course purpose |
| <p>The purpose of this course is to teach students the fundamentals of analytical chemistry, in preparation of further studies.</p> <p>The course focuses mainly on classical but still widely used wet chemical methods, combined with an overview of the instrumental techniques used in contemporary chemical analysis.</p> | |
| 履修要件 | Prerequisite |
| Fundamentals of Chemistry I and II | |
| 履修取り下げについて | Course withdrawal |
| <p><可否> Possible</p> <p><条件></p> <p>Nagoya University approved system; students can withdraw from this course if they submit the request form to the instructor by the officially published date.</p> | |
| 成績評価 | Grading |
| <p>Participation in discussion, Quizzes, Group presentations, homework: 50 % Final Exam 50 %</p> <p>TOTAL: 100 %</p> <p>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% (fewer than 59 pts).</p> | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| <p>Nagoya University approved system; students can withdraw from this course if they submit the request form to the instructor by the officially published date.</p> | |
| 関連する科目 | Related courses |

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| Laboratory in Chemistry |
| 教室 Class room |
| Check the Course Timetable. A-407 |

| 授業内容 Content |
|--|
| <ol style="list-style-type: none"> 1. General Concept of Chemical Equilibrium 2. Acid-Base Equilibria 3. Acid-Base Titrations 4. Complexometric Reactions and Titrations 5. Gravimetric Analysis and Precipitation Equilibria 6. Precipitation Reactions and Titrations 7. Redox Reactions and Equilibria 8. Spectrochemical Methods 9. Sample Preparation: Solvent and Solid-Phase Extraction 10. Chromatography: Principles and Theory 11. Gas Chromatography 12. Liquid Chromatography 13. Clinical Chemistry 14. Environmental Sampling and Analysis |

| 教科書 Textbook |
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| No textbook |
| 参考書 Recommended reading |
| None |
| 連絡方法 Contact method |
| There are two ways to communicate with the instructor: face-to-face in the lecture or the office hour and by e-mail. |
| その他 Remarks |
| *See Course List and Graduation Requirements for your program for your enrollment year. See Course list and Graduation Requirements for your program of your enrollment year. |

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| 科目名 | Course Title | | |
| Mathematical Physics Tutorial I | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 Physics | | 2nd | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Exercise | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester, Day & Period |
| 0910824 | | Fall semester Tue : 4 | |
| 単位数 | Credit | 科目区分 | Course type |
| 1 | | | |
| 担当教員 | Instructor | MATSUZAKI Shinya | |
| 所属研究室 | Laboratory | H lab | |
| 連絡先 | Contact | synya@hken.phys.nagoya-u.ac.jp | |
| 居室 | Room | ES747 | |

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| 講義の目的とねらい | Course purpose |
| <p>Students taking Mathematical Physics I should also take this tutorial class. This course introduces first order and second order ordinary differential equations and their solution methods. Students master exact and approximate analytical techniques for initial value problems that arise in physics, engineering and chemistry. Questions of existence, uniqueness and convergence are also discussed. Fourier series follow naturally from the 2nd order theory and these are investigated, too.</p> | |
| 履修要件 | Prerequisite |
| Calculus I, Calculus II, Linear Algebra I, Linear Algebra II; or Consent of Instructor | |
| 履修取り下げについて | Course withdrawal |
| <可否> Possible <条件> | |
| 成績評価 | Grading |
| Attendance: 60%; Class performance: 40% | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| <p>The " Absent " grade is reserved for students who withdraw by November 14. After that day, a letter grade will be awarded based on marks earned from all assessments during the semester.</p> | |
| 関連する科目 | Related courses |
| Mathematical Physics I. | |

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| 教室 | Class room |
| Check the Course Timetable. ES033. | |
| 授業内容 | Content |
| <ul style="list-style-type: none"> • First order ordinary differential equation (ODE) initial value problems. Integration factor; separable equations; systems of ODEs (Hamiltonian systems); phase plane, flow. Uniqueness and existence theorems. Some differences between linear and nonlinear ODEs. • Second order linear ODE initial value problems. Homogeneous solution. Proving linear independence (Wronskian). Method of Undetermined Coefficients; Variation of Parameters. Series solutions: ordinary point, regular singular point; convergence tests; Method of Frobenius. Examples from physics, engineering and chemistry. • Fourier series. Dirichlet conditions. Role of symmetry. Gibbs phenomenon. Effect of jump discontinuity on speed of convergence. Integration and differentiation of Fourier series. | |
| 教科書 | Textbook |
| None. | |
| 参考書 | Recommended reading |
| 1. Boyce W., DiPrima R, Elementary Differential Equations, 9th or 10th Ed., Wiley. 2. Strang, G., Introduction to Linear Algebra, 4th Edition, Chapter 6. 3. Riley K.F., Hobson M.P., and Bence S. J., 2006, Mathematical Methods for Physics and Engineering, 3rd ed., Cambridge University Press. 4. Boas M.L., 1983, Mathematical Methods in the Physical Sciences, John Wiley & Sons. Arfken G.B. & Weber H.J., 2005, Mathematical Methods for Physicists, 6th ed., Elsevier Academic Press. (Copies are available in the library.) | |
| 連絡方法 | Contact method |
| By emails. | |
| その他 | Remarks |
| *See Course List and Graduation Requirements for your program for your enrollment year. *See Course List and Graduation Requirements for your program for your enrollment year. Concurrent registration in Mathematical Physics I is advised. | |

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| 科目名 | Course Title | | |
| Mathematical Physics I | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 Physics | | 2nd | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Lecture | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester, Day & Period |
| 0910810 | | Fall semester Tue : 5 | |
| 単位数 | Credit | 科目区分 | Course type |
| 2 | | BasicSpecializedCourses | |
| 担当教員 | Instructor | WOJDYLO John Andrew | |
| 所属研究室 | Laboratory | | |
| 連絡先 | Contact | john.wojdylo@s.phys.nagoya-u.ac.jp | |
| 居室 | Room | ES033 | |

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| 講義の目的とねらい | Course purpose |
| <p>This course is a companion course to Mathematical Physics II. This course introduces first order and second order ordinary differential equations and their solution methods. Students master analytical techniques for problems that arise in physics, engineering and chemistry. Questions of uniqueness of solutions and convergence are also discussed. Students are also introduced to Fourier series, the Fourier transform, convolution, Laplace transform, and the Dirac delta function. Students will find this mathematical methods course helpful in other units such as Quantum Mechanics, Analytical Mechanics, Electricity and Magnetism, as well as in Automotive Engineering and other engineering courses.</p> <p>This course has dual aims: 1) to convey mathematical principles; 2) to improve students' technical ability – i.e. ability to express intuition in mathematical terms and ability to solve problems.</p> | |
| 履修要件 | Prerequisite |
| Calculus I; Calculus II; Linear Algebra I; Linear Algebra II, or Consent of Instructor | |
| 履修取り下げについて | Course withdrawal |
| <可否> Possible <条件> | |
| 成績評価 | Grading |
| Attendance: 5%; Weekly Quizzes and Assignments: 25%; Mid-term exam: 35%; Final Exam: 35% | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| The "Absent" grade is reserved for students who withdraw by November 16. After that day, a letter grade will be awarded based on marks earned from all assessment during the semester. | |
| 関連する科目 | Related courses |

| | |
|--|------------|
| Mathematical Physics Tutorial I, Mathematical Physics II | |
| 教室 | Class room |
| Check the Course Timetable. | |

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| 授業内容 | Content |
| <ul style="list-style-type: none"> • First order ordinary differential equation (ODE) initial value problems. Integration factor; separable equations; systems of ODEs (Hamiltonian systems); phase plane, flow. Uniqueness and existence theorems. Some differences between linear and nonlinear ODEs. • Second order linear ODE initial value problems. Homogeneous solution. Proving linear independence (Wronskian). Method of Undetermined Coefficients; Variation of Parameters. Series solutions: ordinary point, regular singular point; convergence tests; Method of Frobenius. Examples from physics, engineering and chemistry. • Fourier series. Dirichlet conditions. Role of symmetry. Gibbs phenomenon. Effect of jump discontinuity on speed of convergence. Integration and differentiation of Fourier series. • Fourier transform, convolution, Dirac delta function. Laplace transform. | |

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| 教科書 | Textbook |
| Boyce W., DiPrima R, Elementary Differential Equations, 7th –10th Ed., Wiley. | |

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| 参考書 | Recommended reading |
| <ol style="list-style-type: none"> 1. Boas M.L., 2006, Mathematical Methods in the Physical Sciences, 3rd ed., John Wiley & Sons. 2. Strang, G., Introduction to Linear Algebra, 4th Edition, Chapter 6. 3. Arfken G.B. & Weber H.J., 2005, Mathematical Methods for Physicists, 6th ed., Elsevier Academic Press. (Copies are available in the library.) | |

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| 連絡方法 | Contact method |
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| その他 | Remarks |
| <p>*See Course List and Graduation Requirements for your program for your enrollment year.</p> <ul style="list-style-type: none"> • Students taking Mathematical Physics I should also take Mathematical Physics Tutorial I. • Concurrent registration in Mathematical Physics II is recommended as that unit is a prerequisite for Electricity and Magnetism I. • The book by Boas is also useful for Mathematical Physics II and Electricity and Magnetism. | |

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| 科目名 | Course Title |
| Organic Chemistry I | |
| 学科・専攻 | Department/Program |
| G30 Chemistry | |
| 受講年次 | Grade |
| 2nd | |
| 授業形態 | Class style |
| Lecture | |
| 必修・選択の別 | Compulsory or Elective |
| * See "Remarks" | |
| 時間割コード | Registration code |
| 0910807 | |
| 開講期・曜日・時限 | Semester, Day & Period |
| Fall semester Wed : 1 | |
| 単位数 | Credit |
| 2 | |
| 科目区分 | Course type |
| | |
| 担当教員 | Instructor |
| SHIN Jiyoung | |
| 所属研究室 | Laboratory |
| | |
| 連絡先 | Contact |
| jyshin@apchem.nagoya-u.ac.jp | |
| 居室 | Room |
| | |

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| 講義の目的とねらい | Course purpose |
| <p>Main purpose of this course is to acquire a logical framework for understanding fundamental organic chemistry. This framework emphasizes how the structures of organic molecules are related to the molecular functions in chemical reactions. On the basis of the knowledge, we consecutively learn how to solve practical problems in organic chemistry.</p> | |
| 履修要件 | Prerequisite |
| Fundamentals of Chemistry I and II | |
| 履修取り下げについて | Course withdrawal |
| <p><可否> Possible <条件> Student can withdraw the course with a submission of the requirement during a certain period prepared for course-withdrawal by university.</p> | |
| 成績評価 | Grading |
| <p>Examination (two midterms and one final: 70%); Attendance (10%: each absence deducts 3 point); Assessment of Homework (20%): S(x > 90), A(90 > x > 80), B(80 > x > 70), C(70 > x > 60), and F(60 > x).</p> | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| <p>1. A maximum of three absences can be authorized. 2. Submissions of student sickness/absence reporting are required.</p> | |
| 関連する科目 | Related courses |
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| 教室 | Class room |
| Check the Course Timetable. 141, Bldg.1,Engr. | |
| 授業内容 | Content |
| <ol style="list-style-type: none"> 1. Structure and Bonding in Organic Molecules: Hybridization 2. Structures of Organic Molecules and Their Stereochemistry <ul style="list-style-type: none"> - Alkanes and Cycloalkanes - Alkenes and Alkynes - Delocalized π-System 3. Structures and Reactivity <ul style="list-style-type: none"> - Polar and Nonpolar Molecules - Formal Charge and Oxidation States - Acids and Bases versus Electrophiles and Nucleophiles - Chemical Reactions: Additions, Substitutions, and Eliminations - Chemical Kinetics: Transition State, Intermediate, Endothermic and Exothermic Processes, and Activation Energy 4. Aliphatic Nucleophilic Substitutions: SN1 and SN2 <ul style="list-style-type: none"> - Chemical Kinetics: Stabilities of Reaction Intermediates (Carbocations: Hyperconjugation and Resonances) - Stereochemistry upon the Stable Reaction Intermediate - Unimolecular Nucleophilic Substitutions (SN1): Favor Substrates, Nucleophiles, Leaving Groups, and Solvents - Bimolecular Nucleophilic Substitutions (SN2); Favor Substrates, Nucleophiles, Leaving Groups, and Solvents - Comparison of SN1 and SN2 - Competing Reactions of SN1: Rearrangement and Unimolecular Elimination (E1) - Competing Reaction of SN2: Bimolecular Elimination (E2) - Unimolecular Elimination of Conjugate Bases (E1CB) | |
| 教科書 | Textbook |
| Organic Chemistry: Structure and Function (Sixth Edition), Peter Vollhardt and Neil Schore, (International Edition: W. H. Freeman and Company), New York, 2009, Chapters 1-7. | |
| 参考書 | Recommended reading |
| | |
| 連絡方法 | Contact method |
| Students can communicate with the course instructor face-to-face either in the class or in the appointment. Communication through an e-mail (instructor's e-mail: jyshin@apchem.nagoya-u.ac.jp) is also available. | |
| その他 | Remarks |
| *See Course List and Graduation Requirements for your program for your enrollment year. | |

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| 科目名 | Course Title | | |
| Analytical Mechanics I | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 Physics | | 2nd | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Lecture | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester, Day & Period |
| 0910808 | | Fall semester Wed : 2 | |
| 単位数 | Credit | 科目区分 | Course type |
| 2 | | | |
| 担当教員 | Instructor | FOONG See Kit | |
| 所属研究室 | Laboratory | E-Lab | |
| 連絡先 | Contact | 052-789-2861 | |
| 居室 | Room | ES420 | |

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| 講義の目的とねらい | Course purpose |
| This is the first of two courses in analytical mechanics. Its purposes are to gain a deeper understanding, aided by basic vector calculus, of Newtonian mechanics treated in Year I, and to introduce the Lagrangian and Hamiltonian formulations of mechanics. These formulations are then used in the solution of the two-body central force problems. | |
| 履修要件 | Prerequisite |
| Calculus I&II, Fundamentals of Physics I &II, and concurrent registration of Mathematical Physics I & II | |
| 履修取り下げについて | Course withdrawal |
| <可否> Possible <条件> You may withdraw from the course following the standard procedure of the School of Science. | |
| 成績評価 | Grading |
| Will be based on Class Attendance&Participation, Assignments, Quizzes&Mid-term Exam and Final Exam (The details will be announced in class) | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" &"Fail" grades |
| Class attendance is required. Absentee must give a valid reason, supported with document. A student will receive the " ABSENT " grade if he is absent without valid reason from lecture more than 3 times or the mid-term exam or the final exam. | |
| 関連する科目 | Related courses |
| Analytical Mechanics II, Quantum Mechanics I | |
| 教室 | Class room |

Check the Course Timetable.
ES034

授業内容 Content

1. Newton ' s Laws of Motion
2. Momentum and Angular Momentum
3. Energy and Forces
4. Calculus of Variations
5. Lagrange ' s Equations
6. Hamiltonian Mechanics
7. Two Body Central-Force Problems

教科書 Textbook

John R. Taylor, Classical Mechanics (University Science Book, 2005)

参考書 Recommended reading

1. S.T. Thornton and J.B. Marion: Classical Dynamics of Particles and Systems (5th Edition, Brooks Cole, 2003)
2. R. D. Gregory: Classical Mechanics (Cambridge, 2008)

連絡方法 Contact method

Office hour & Appointment via Email:
Office: ES420
Email: skfoong@eken.phys.nagoya-u.ac.jp

その他 Remarks

*See Course List and Graduation Requirements for your program for your enrollment year.
You are required to register for Physics Tutorial Ia (the tutorial for AM I) concurrently, unless you have already passed the course.

G30 Program (School of Agricultural Sciences), (Undergraduate)

| Agricultural Science | | | |
|--|--|--|--------|
| Registration code | 0913001 | Credits | 2.0 |
| Course Category | Specialized Courses | Class room | Room 6 |
| Term (Semester)/Day/Period | III(2 nd year 1 st semester)/Wed/5(16:30-18:00) | | |
| Instructor | INOUE Naoko (Lectures are also given by other professors.) | | |
| Contact | Office: Graduate School of Bioagricultural Sciences, Rm A242 Phone: 052-789-4074 E-mail: ninoue@agr.nagoya-u.ac.jp | | |
| Course Purpose | | | |
| We are beset by an array of global concerns such as the depletion of food and energy resources, poverty and health problems, and the destruction of the natural- and living-environments. This course, by taking as its base recent developments in the field of life sciences, aims to propose possible solutions to the above, through the analysis of biological production, symbiosis, and frontier technology in the field of bioscience. | | | |
| Course Contents | | | |
| 1. Introduction | (INOUE Naoko) | | |
| 2. Ecology of irrigated rice fields | (MURASE Jun) | | |
| 3. International cooperation | (ITO Kasumi) | | |
| 4. Basic reproductive endocrinology | (TSUKAMURA Hiroko, INOUE Naoko) | | |
| 5. Molecular insect sciences | (MINAKUCHI Chieka) | | |
| 6. Genetically modified crops | (TANIGUCHI Mitsutaka, Joyce Abad CARTAGENA) | | |
| 7. Enzyme engineering | (IWASAKI Yugo) | | |
| 8. Basic Crop Science | (YAMAUCHI Akira) | | |
| 9. Group discussion | (INOUE Naoko) | | |
| 10. Remarks | (INOUE Naoko) | | |
| Grading | | | |
| Evaluation will be based on in-class participation and assignments. | | | |
| Course Withdrawal | | Criteria for “Absent” & “Fail” Grades | |
| TBA | | TBA | |
| Prerequisite | | Related Courses | |
| | | | |
| Text Book | | | |
| Reference Book | TBA | | |
| Remarks | Japanese undergraduates and short-visit international students may also take the lecture. | | |

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| 科目名 | Course Title | | |
| Physical Chemistry I | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 Chemistry | | 2nd | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Lecture | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester, Day & Period |
| 0910809 | | Fall semester Thu : 1 | |
| 単位数 | Credit | 科目区分 | Course type |
| 2 | | | |
| 担当教員 | Instructor | BUTKO Peter | |
| 所属研究室 | Laboratory | | |
| 連絡先 | Contact | Phone: 789-2480 E-mail: pbutko@chem.nagoya-u.ac.jp | |
| 居室 | Room | A Building-318-1 (Science & Agriculture) | |

| | |
|---|---------------------------------------|
| 講義の目的とねらい | Course purpose |
| <p>The purpose of this course is to learn what physical chemistry is all about and to grasp important principles and facts about physical chemistry. The course begins with perfect gas law, proceeds to thermodynamics, and finishes with applications of thermodynamics to simple mixtures.</p> | |
| 履修要件 | Prerequisite |
| Fundamentals of Chemistry I and II | |
| 履修取り下げについて | Course withdrawal |
| <p><可否> Possible <条件> Yes. The last day to withdraw without academic penalty is the 6th lecture period.</p> | |
| 成績評価 | Grading |
| <p>Two exams: 100 points each, final exam (comprehensive): 200, homework: 50. TOTAL: 450. Grade "S": 100-90% (405 or more points), "A": 89-80% (404 - 360 pts), "B": 79-70% (359 - 315 pts), "C": 69-60% (314 - 270 pts), "F": 59-0% (fewer than 270 pts).</p> | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| <p>The " Absent " grade is reserved for students that withdraw by the 6th lecture period. After that day, a letter grade will be awarded based on grades earned from all assignments during the semester.</p> | |
| 関連する科目 | Related courses |
| | |
| 教室 | Class room |

Check the Course Timetable.
A-407

授業内容 Content

- 1 The Properties of Gases 1 (Ch. 1)
- 2 The Properties of Gases 2 (Ch. 1)
- 3 The First Law 1 (Ch. 2)
- 4 The First Law 2 (Ch. 2)
- 5 Pre-exam Review & EXAM 1 (Chs. 1 & 2)
- 6 The Second and Third Laws 1 (Ch. 3)
- 7 The Second and Third Laws 2 (Ch. 3)
- 8 Physical Transformations of Pure Substances (Ch. 4)
- 9 Simple Mixtures 1 (Ch. 5)
- 10 Simple Mixtures 2 (Ch. 5)
- 11 Pre-exam Review & EXAM 2 (Chs. 3 – 5)
- 12 Chemical Equilibrium 1 (Ch. 6)
- 13 Chemical Equilibrium 2 (Ch. 6)
- 14 Pre-final Review
- 15 FINAL EXAM (Ch. 1 – 6)

教科書 Textbook

P. Atkins and J. de Paula: Atkins ' Physical Chemistry, 10th Ed., Oxford University Press, 2014

参考書 Recommended reading

連絡方法 Contact method

その他 Remarks

*See Course List and Graduation Requirements for your program for your enrollment year.

| | | | |
|-------------|--------------------|--------------------------------|------------------------|
| 科目名 | Course Title | | |
| Genetics I | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 Biology | | 2nd | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Lecture | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester, Day & Period |
| 0913003 | | Fall semester Thu : 2 | |
| 単位数 | Credit | 科目区分 | Course type |
| 2 | | | |
| 担当教員 | Instructor | VASSILEVA Maria Niko | |
| 所属研究室 | Laboratory | | |
| 連絡先 | Contact | mnvassileva@bio.nagoya-u.ac.jp | |
| 居室 | Room | E202 | |

| | |
|---|---------------------------------------|
| 講義の目的とねらい | Course purpose |
| <p>This course will refresh and deepen basic knowledge of genetics, and is the beginning of a series of courses on Genetics that will stretch over two-year period.</p> <p>Students will learn fundamental processes of how genetic information can be inherited rigidly and flexibly from generation to generation.</p> <p>Students are expected to become confident at using appropriate scientific terminology, explain the basic genetics concepts and be able to analytically manipulate this information.</p> | |
| 履修要件 | Prerequisite |
| Prerequisite - successfully completed Fundamentals of Biology I | |
| 履修取り下げについて | Course withdrawal |
| <p><可否> Possible</p> <p><条件></p> <p>Submit Course Withdrawal Request form by the sixth lecture.</p> | |
| 成績評価 | Grading |
| Evaluation is based on in-class participation, assignments and examinations, using Nagoya University grading system S/A/B/C/F | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| <p>Absent – based on submission of Course Withdrawal Request Form.</p> <p>Fail – based on a total of less than 60 points accumulated through examinations and assignments.</p> | |
| 関連する科目 | Related courses |
| Genetics II, Genetics III | |

| | |
|--|----------------------------|
| 教室 | Class room |
| Check the Course Timetable. A 407 | |
| 授業内容 | Content |
| Overall theme of the course - Maintenance of the genome Detailed content: 1. Mendelian genetics 2. DNA and RNA structure 3. Chromosomes, chromatin, and the nucleosome 4. Replication of DNA 5. Mutability and repair of DNA 6. Genetic recombination | |
| 教科書 | Textbook |
| Molecular Biology of the Gene, Watson, James D. et al., Pearson Education. | |
| 参考書 | Recommended reading |
| Essentials of Genetics, William S. Klug et al., Benjamin Cummings. | |
| 連絡方法 | Contact method |
| by e-mail | |
| その他 | Remarks |
| *See Course List and Graduation Requirements for your program for your enrollment year. Please note that successful completion of this course will be a prerequisite to take the subsequent Genetics 2 course. | |

| | | | |
|-----------------------|--------------------|---------------------------|------------------------|
| 科目名 | Course Title | | |
| Statistical Physics I | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 Physics | | 2nd | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Lecture | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester, Day & Period |
| 0910812 | | Fall semester Fri : 2 | |
| 単位数 | Credit | 科目区分 | Course type |
| 2 | | Basic Specialized Courses | |
| 担当教員 | Instructor | TAKIMOTO Fujio | |
| 所属研究室 | Laboratory | | |
| 連絡先 | Contact | | |
| 居室 | Room | | |

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|---|---------------------------------------|
| 講義の目的とねらい | Course purpose |
| <p>The purpose of Statistical Physics I is to understand the basic laws that govern macroscopic bodies consisting of an enormous number of atoms and molecules. This first part of the course covers universal phenomenological laws, called thermodynamic laws, and their applications. The main focus of this course is to understand the basic principles of classical thermodynamics which are the basis for macroscopic understanding of all the physical phenomena. The applications in automotive engineering are also introduced.</p> | |
| 履修要件 | Prerequisite |
| Calculus | |
| 履修取り下げについて | Course withdrawal |
| <可否> Possible <条件> Ask the instructor. | |
| 成績評価 | Grading |
| Grade Assessment Grades will be based on class participation, assignments and a final examination. 30% for attendance 30% for assignments 40% for final examination | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| Ask the instructor. | |
| 関連する科目 | Related courses |

| | |
|--|---------------------|
| | |
| 教室 | Class room |
| Check the Course Timetable. | |
| 授業内容 | Content |
| <p>Course Topics</p> <ol style="list-style-type: none"> 1. Thermal Equilibrium and Temperature 2. State Equations, Partial Differentials, Units and Dimensions 3. The First Law of Thermodynamics (energy, isothermal and adiabatic processes) 4. The Second Law of Thermodynamics 5. Entropy 6. Thermodynamic Functions 7. Phase Equilibrium and Chemical Equilibrium 8. Kinetic Theory and Statistical Mechanics | |
| 教科書 | Textbook |
| Printed handouts will be provided. | |
| 参考書 | Recommended reading |
| <p>Additional Reading</p> <p>Modern Engineering Thermodynamics; Robert T. Balmer; Academic Press (2010)</p> | |
| 連絡方法 | Contact method |
| <p>Contacting Faculty</p> <p>Students can ask questions at any time during classes.</p> <p>Questions during off-class hours can be asked at the lecturer's room (Engineering Building No.3 North Wing, Room 223 (3125)) or via e-mail: takimotof@nuem.nagoya-u.ac.jp</p> | |
| その他 | Remarks |
| *See Course List and Graduation Requirements for your program for your enrollment year. | |

| | | | |
|----------------|--------------------|--------------------------------|------------------------|
| 科目名 | Course Title | | |
| Cell Biology I | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 Biology | | 2nd | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Lecture | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester, Day & Period |
| 0910811 | | Fall semester Fri : 3 | |
| 単位数 | Credit | 科目区分 | Course type |
| 2 | | | |
| 担当教員 | Instructor | VASSILEVA Maria Niko | |
| 所属研究室 | Laboratory | | |
| 連絡先 | Contact | mnvassileva@bio.nagoya-u.ac.jp | |
| 居室 | Room | E202 | |

| | |
|---|---------------------------------------|
| 講義の目的とねらい | Course purpose |
| <p>This course is expected to refresh and deepen students' knowledge in basic cell organisation, and is the beginning of a series of courses on Cell Biology that will stretch over two-year period.</p> <p>This first part, Cell Biology I, focuses on two main modules: Cell membrane and Basic genetics.</p> | |
| 履修要件 | Prerequisite |
| Prerequisite - successfully completed Fundamentals of Biology I | |
| 履修取り下げについて | Course withdrawal |
| <p><可否> Possible</p> <p><条件></p> <p>Submit Course Withdrawal Request form by the sixth lecture.</p> | |
| 成績評価 | Grading |
| Evaluation is based on in-class participation, assignments and examinations. This course uses Nagoya University official grading system S/A/B/C/F. | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| <p>Absent – based on submission of Course Withdrawal Request Form.</p> <p>Fail - a total of less than 60 points accumulated through examinations and assignments.</p> | |
| 関連する科目 | Related courses |
| Cell Biology II, Cell Biology III | |
| 教室 | Class room |

Check the Course Timetable.
A 408

授業内容 Content

1. Basic cell architecture
2. Chemical components of cells
3. Protein structure and function
4. Cell membrane: Structure and Function
5. DNA and chromosome: Basic genetic mechanisms
6. DNA replication, repair and recombination
7. DNA translation
8. Control of gene expression

教科書 Textbook

Essential Cell Biology (third edition), B. Alberts et al., Garland Science.

参考書 Recommended reading

Becker`s world of the cell (8 ed.), Hardin, Bertoni, Kleinsmith, Pearson
Molecular Biology of the Cell, B. Alberts et al., Taylor & Francis.

連絡方法 Contact method

By e-mail

その他 Remarks

*See Course List and Graduation Requirements for your program for your enrollment year.

| | | | |
|------------------|--------------------|------------------------------|------------------------|
| 科目名 | Course Title | | |
| Plant Physiology | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 Biology | | 3rd | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Lecture | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester, Day & Period |
| 0913007 | | Fall semester Tue : 2 | |
| 単位数 | Credit | 科目区分 | Course type |
| 2 | | | |
| 担当教員 | Instructor | MIZUKAMI Yukiko | |
| 所属研究室 | Laboratory | PSR: Plant Size Regulation | |
| 連絡先 | Contact | ymizukami@bio.nagoya-u.ac.jp | |
| 居室 | Room | SA333 | |

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|---|---------------------------------------|
| 講義の目的とねらい | Course purpose |
| <p>This course provides students with a comprehensive understanding of concepts, principles, and strategies concerning the basic mechanisms underlying plant growth, development, and survival. Topics covered include mineral nutrition, solute transport, photosynthesis, respiration, metabolism, environmental and developmental signals, and plant hormone action.</p> | |
| 履修要件 | Prerequisite |
| <p>No Prerequisite. However, strongly recommended to complete Physiology and Developmental Biology (or Physiology I) course (Term III) before taking this course.</p> | |
| 履修取り下げについて | Course withdrawal |
| <p><可否> Possible <条件> With a written request sent to the instructor before/on October 24 via e-mail, you can cancel a course assignment without it appearing on your record.</p> | |
| 成績評価 | Grading |
| <p>Grading materials: Presentations and reports (40%); Attendance and participation (20%); Exams (40%). Grading scale: S=90-100%; A=80-89%; B=70-79%; C=60-69%; F=below 59%.</p> | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| <p>No " Absent " grade will be given in this course. Students who fail to attend 3 or more lectures will immediately get an " F (Fail) " grade.</p> | |
| 関連する科目 | Related courses |
| <p>Physiology and Developmental Biology or Physiology I (Term III)</p> | |

| | |
|--|---------------------|
| 教室 | Class room |
| <p>Check the Course Timetable. Science and Agricultural Building, Room 335 (SA335)</p> | |
| 授業内容 | Content |
| <ol style="list-style-type: none"> 1. Plant Cells: Overview of plant structure; The endomembrane system; The plant cytoskeleton; The plant cell cycle; Plasmodesmata. 2. Genome Organization & Gene Expression: Nuclear genome organization; Plant cytoplasmic genomes; Post-translational regulation; Genetic modification of plants; Tools for studying plant genes 3. Mineral Nutrition & Solute Transport: Essential Nutrients; Nutritional Deficiencies; Soil, roots, and microbes. 4. Overview of Photosynthesis & Translocation in the Phloem: General concepts, Pathways of translocation; Phloem loading & unloading; Photosynthate distribution. 5. Respiration: Overview of plant respiration; Plant glycolysis; Respiration in intact plants. 6. Plant Defense & Adaptation to Abiotic Stress: Secondary metabolites & plant defense; Biotic & abiotic stresses; Adaptation & plasticity; Developmental; & physiological mechanisms. 7. Cell Walls: Structure, Biogenesis, and Expansion: Structure & synthesis; Patterns of cell expansion; The rate of cell expansion. 8. Plant Hormones in Growth and Development: AUXIN: Overview of plant growth; The auxin concepts; Transport; Signal transduction pathways; Actions & effects. 9. Plant Hormones in Growth and Development: GIBBERELLINS: Discovery & Structure; Effects on plant growth; Biosynthesis & deactivation; GA signaling; GA responses. 10. Plant Hormones in Growth and Development: CYTOKININS: Cell division & plant growth; Biosynthesis, metabolism, & transport; Cytokinin signaling; Biological roles. 11. Plant Hormones in Growth and Development: ABSCISIC ACID: Chemical structure; Biosynthesis, metabolism, & transport; Signal transduction pathways; Biological roles. 12. Plant Hormones in Growth and Development: ETHYLENE & BRASSINOSTEROIDS: Structure & biosynthesis; Signal transduction pathways; Effects on growth & development. | |
| 教科書 | Textbook |
| <p>Plant Physiology: International Edition (5th revised edition, 2010) by Taiz, L. and Zeiger, E., Sinauer Associates Inc., USA. ISBN: 0878935657</p> | |
| 参考書 | Recommended reading |
| <p>Biochemistry & Molecular Biology of Plants (1st edition, 2002) by Buchanan, B., Gruissem, W., and Jones, R. , Wiley, USA. ISBN: 0943088399</p> | |
| 連絡方法 | Contact method |
| <p>via e-mail only</p> | |
| その他 | Remarks |
| <p>*See Course List and Graduation Requirements for your program for your enrollment year. Office hours: Tuesday, 2:00 pm – 4:00 pm, or by an appointment via e-mail</p> <p>See "Course List and Graduation Requirements" for your program for your enrollment year.</p> <p>For more information, please visit our NU-OCW (NU-OpenCourseWare) site: http://ocw.nagoya-u.jp/index.php?lang=en&mode=c&id=404&page_type=index</p> | |

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|------------------|--------------------|--------------------------------|------------------------|
| 科目名 | Course Title | | |
| Chemical Physics | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 Physics | | 3rd | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Lecture | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester,Day & Period |
| 0913071 | | Fall semester Wed : 1 | |
| 単位数 | Credit | 科目区分 | Course type |
| 2 | | | |
| 担当教員 | Instructor | OKAMOTO Yuko | |
| 所属研究室 | Laboratory | Theoretical Biophysics | |
| 連絡先 | Contact | okamoto@tb.phys.nagoya-u.ac.jp | |
| 居室 | Room | 510 Science Hall | |

| | |
|--|---------------------------------------|
| 講義の目的とねらい | Course purpose |
| The purpose of this course is to learn about the statistical thermodynamics which can describe the behaviors of molecules in physical, chemical, and biological systems. | |
| 履修要件 | Prerequisite |
| | |
| 履修取り下げについて | Course withdrawal |
| <可否> Possible <条件> Withdrawal is permitted up to the day that is specified by the University. | |
| 成績評価 | Grading |
| Attendance: 10 %, Homework Sets: 20 %, Exams: 70 % | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| The " Absent " grade is reserved for students who withdraw by the day that is specified by the University. After that day, a letter grade will be awarded based on marks earned from all assessment during the semester. | |
| 関連する科目 | Related courses |
| Biophysics, Statistical Physics I | |
| 教室 | Class room |
| Check the Course Timetable. ES034 | |

| 授業内容 | Content |
|------|---|
| | 1. Mathematical Tools 2. Extremum Principles 3. Heat, Work, and Energy 4. Entropy and the Boltzmann Law 5. Thermodynamic Driving Forces 6. The Logic of Thermodynamics 7. Laboratory Conditions and Free Energy 8. Maxwell's Relations and Mixtures 9. The Boltzmann Distribution Law 10. The Statistical Mechanics of Simple Gases and Solids 11. Temperature and Heat Capacity 12. Chemical Equilibria |

| 教科書 | Textbook |
|------|---|
| | K.A. Dill and S. Bromberg, "Molecular Driving Forces" 2nd ed. (Garland Science). |
| 参考書 | Recommended reading |
| | F. Reif, "Fundamentals of Statistical and Thermal Physics" (McGraw-Hill). |
| 連絡方法 | Contact method |
| | By e-mail. |
| その他 | Remarks |
| | *See Course List and Graduation Requirements for your program for your enrollment year. |

| 科目名 | Course Title | |
|--------------|--------------------|------------------------|
| Genetics III | | |
| 学科・専攻 | Department/Program | 受講年次 |
| G30 Biology | | 3rd |
| 授業形態 | Class style | 必修・選択の別 |
| Lecture | | Compulsory or Elective |
| | | * See "Remarks" |
| 時間割コード | Registration code | 開講期・曜日・時限 |
| 0913009 | | Semester, Day & Period |
| | | Fall semester Wed : 2 |
| 単位数 | Credit | 科目区分 |
| 2 | | Course type |
| | | |
| 担当教員 | Instructor | SUGIYAMA Shin |
| 所属研究室 | Laboratory | DG |
| 連絡先 | Contact | 5039 |
| 居室 | Room | E207 |
| 担当教員 | Instructor | KANAMORI Akira |
| 所属研究室 | Laboratory | DG |
| 連絡先 | Contact | 2537 |
| 居室 | Room | E207 |
| 担当教員 | Instructor | YAGI Yoshimasa |
| 所属研究室 | Laboratory | DG |
| 連絡先 | Contact | 5039 |
| 居室 | Room | E207 |
| 担当教員 | Instructor | GOSHIMA Gota |
| 所属研究室 | Laboratory | Z3 |
| 連絡先 | Contact | 6175 |
| 居室 | Room | |

| 講義の目的とねらい | Course purpose |
|--|----------------|
| This course introduces the principles of molecular genetics. | |
| 履修要件 | Prerequisite |
| A basic knowledge of molecular genetics | |

| | |
|--|---------------------------------------|
| 履修取り下げについて | Course withdrawal |
| <p><可否> Possible <条件> Submit Course Withdrawal Request form by the sixth lecture.</p> | |
| 成績評価 | Grading |
| <p>Each instructor will be responsible for 100 points for a course-total of 400 points. Evaluation will be based on in-class participation (0-30%) and assignments or examinations (70-100%), with percentage depending on the individual instructor. Grading scale: S=90-100%; A=80-89%; B=70-79%; C=60-69%; F=below 59%, of 400 point total. Formal requests for special considerations concerning health problems etc. should be submitted with documentation through the student's Student Advisor as early as possible.</p> | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| <p>Absent – based on submission of Course Withdrawal Request Form. Fail – based on “ Failed ” results of examinations and assignments.</p> | |
| 関連する科目 | Related courses |
| Genetics I, Genetics II | |
| 教室 | Class room |
| <p>Check the Course Timetable. Science Building A, Room A-408</p> | |

| | |
|--|---------|
| 授業内容 | Content |
| <p>Topics covered: Regulation of gene expression, genomics, systems biology, and methodology. Lectures based on "Molecular Biology of the Gene", by James D. Watson et al. will be given by 4 faculty members of the Division of Biological Science (Chapter numbers are according to the 6th edition). Chapter 16 "Transcriptional Regulation in Prokaryotes" by Akira Kanamori Chapter 17 "Transcriptional Regulation in Eukaryotes" by Akira Kanamori and Shin Sugiyama Chapter 18 "Regulatory RNA" by Shin Sugiyama Chapter 19 "Gene Regulation in Development and Evolution" by Yoshimasa Yagi Chapter 20 "Genome Analysis and Systems Biology" by Yoshimasa Yagi and Gohta Goshima Chapter 21 "Techniques of Molecular Biology" Chapter 22 "Model Organisms" by Gohta Goshima</p> | |

| | |
|--|---------------------|
| 教科書 | Textbook |
| <p>Molecular Biology of the Gene, James D. Watson et al. CSH Press/Pearson (6th edition or newer) ISBN 978-0805395921 (6th ed.), 978-0321762436 (7th ed.)</p> | |
| 参考書 | Recommended reading |
| | |
| 連絡方法 | Contact method |
| | |

その他 Remarks

*See Course List and Graduation Requirements for your program for your enrollment year.

| | | | |
|-------------------------|--------------------|--------------------------------|------------------------|
| 科目名 | Course Title | | |
| Computational Chemistry | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 Chemistry | | 3rd | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Lecture | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester, Day & Period |
| 0913072 | | Fall semester Thu : 1 | |
| 単位数 | Credit | 科目区分 | Course type |
| 2 | | | |
| 担当教員 | Instructor | YOKOGAWA Daisuke | |
| 所属研究室 | Laboratory | Quantum Chemistry Group | |
| 連絡先 | Contact | d.yokogawa@chem.nagoya-u.ac.jp | |
| 居室 | Room | ITbM505 | |

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|--|---------------------------------------|
| 講義の目的とねらい | Course purpose |
| Computers are becoming one of the useful tools to proceed researches in chemistry. By using computers, scientists can study any kinds of materials, such as highly toxic molecules, unstable compounds, and so on. However, to get results from computers, we have to prepare programs that contain commands. In this class, we study how to prepare such a program. | |
| 履修要件 | Prerequisite |
| | |
| 履修取り下げについて | Course withdrawal |
| <可否> Possible <条件> | |
| 成績評価 | Grading |
| Evaluation of attendance and report assignment | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| Missing reports. | |
| 関連する科目 | Related courses |
| | |
| 教室 | Class room |
| Check the Course Timetable. Center Lab B (4F), Bldg.7B. Engr. | |

| | |
|---|---------------------|
| 授業内容 | Content |
| 1. Calculation of the area of a circle (i) Introduction to Fortran program (ii) data types and variables (iii) do loops (iv) If and else if (v) subroutine and function 2. Challenging study to make a maze solving program (i) How to simplify the problem (ii) Presentation | |
| 教科書 | Textbook |
| | |
| 参考書 | Recommended reading |
| Larry Nyhoff, Stanford Leestma: Introduction to FORTRAN90 | |
| 連絡方法 | Contact method |
| | |
| その他 | Remarks |
| *See Course List and Graduation Requirements for your program for your enrollment year. | |

| | | | |
|------------------|--------------------|-----------------------|------------------------|
| 科目名 | Course Title | | |
| Cell Biology III | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 Biology | | 3rd | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Lecture | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester, Day & Period |
| 0913010 | | Fall semester Thu : 2 | |
| 単位数 | Credit | 科目区分 | Course type |
| 2 | | | |
| 担当教員 | Instructor | KINOSHITA Makoto | |
| 所属研究室 | Laboratory | Cell Regulation | |
| 連絡先 | Contact | 3653 | |
| 居室 | Room | SS323 | |
| 担当教員 | Instructor | SUGIYAMA Shin | |
| 所属研究室 | Laboratory | DG | |
| 連絡先 | Contact | 5039 | |
| 居室 | Room | E207 | |
| 担当教員 | Instructor | TAKAGI Shin | |
| 所属研究室 | Laboratory | DG | |
| 連絡先 | Contact | 2982 | |
| 居室 | Room | E207 | |

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| 講義の目的とねらい | Course purpose |
| <p>This course covers basic topics in cell biology. Students who successfully complete this course will understand fundamental biological phenomena at the molecular and cellular levels that include the cytoskeletal systems, mitosis and meiosis, and intercellular communications in multicellular organisms. They will develop insights into the complexities of cell structure and function, the underlying molecular events, the dynamic properties of living cells, and how these contribute to the generation and functioning of the whole organism.</p> | |
| 履修要件 | Prerequisite |
| | |
| 履修取り下げについて | Course withdrawal |

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|---|---------------------------------------|
| <可否> Possible <条件> Submit Course Withdrawal Request form by the sixth lecture. | |
| 成績評価 | Grading |
| Each instructor will be responsible for 100 points of a course-total of 300 points. Evaluation will be based on in-class participation (0-30%) and assignments or examinations (70-100%), with percentage depending on the individual instructor. Grading scale: S=90-100%; A=80-89%; B=70-79%; C=60-69%; F=below 59%, of 300 point total. Formal requests for special considerations concerning health problems etc. should be submitted with documentation through the student's Student Advisor as early as possible. | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |
| Absent – based on submission of Course Withdrawal Request Form. Fail – based on “ Failed ” results of examinations and assignments. | |
| 関連する科目 | Related courses |
| | |
| 教室 | Class room |
| Check the Course Timetable. A-408 | |

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| 授業内容 | Content |
| Chapter 17 Cytoskeleton (by Kinoshita), Chapter 18 The Cell Division Cycle, Chapter 19 Sex and Genetics + (by Sugiyama), Chapter 20 Cellular Communities: Tissues, Stem Cells and Cancer + (by Takagi), "From cell biology to physiology and pathology" (by Kinoshita), Exam | |

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| 教科書 | Textbook |
| Essential Cell Biology (3rd ed.) Bruce Alberts et al. | |
| 参考書 | Recommended reading |
| | |
| 連絡方法 | Contact method |

Kinoshita
SS323
052-789-3653
kinoshita.makoto@c.mbox.nagoya-u.ac.jp

Sugiyama
E207
052-789-5039
ssugiya@bio.nagoya-u.ac.jp

Takagi
E207
052-789-2982
takagi@bio.nagoya-u.ac.jp

その他 Remarks

*See Course List and Graduation Requirements for your program for your enrollment year.

| | | | |
|------------------------------|--------------------|---|------------------------|
| 科目名 | Course Title | | |
| Earth and Planetary Sciences | | | |
| 学科・専攻 | Department/Program | 受講年次 | Grade |
| G30 All program | | 3rd | |
| 授業形態 | Class style | 必修・選択の別 | Compulsory or Elective |
| Lecture | | * See "Remarks" | |
| 時間割コード | Registration code | 開講期・曜日・時限 | Semester, Day & Period |
| 0910818 | | Fall semester Fri : 1 | |
| 単位数 | Credit | 科目区分 | Course type |
| 2 | | BasicSpecializedCourses | |
| 担当教員 | Instructor | HUMBLET Marc Andre | |
| 所属研究室 | Laboratory | Department of Earth and Planetary Sciences, Geobiology Group | |
| 連絡先 | Contact | Phone: 052-789-3037 / E-mail: humblet.marc@f.mbox.nago ya-u.ac.jp | |
| 居室 | Room | Science building E, 516 | |

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| 講義の目的とねらい | Course purpose |
| <p>In this course students will learn about the characteristics of the planets and other components of our solar system (orbital parameters, atmospheric conditions, internal structure and composition, geomorphology, geological activity). We will use the knowledge of our own planet Earth as a reference to understand processes occurring elsewhere. During the past fifty years, various spacecrafts and exploration vehicles have been used to considerably expand our knowledge of the solar system and send back to Earth ever more detailed pictures of distant worlds. The course will review the different means of space exploration and use abundant data acquired by past and ongoing missions to illustrate the characteristics of the planets. A recurrent topic throughout the course will be the fascinating question of the existence of extraterrestrial life and its detection. We will also discuss the future of space exploration.</p> | |
| 履修要件 | Prerequisite |
| | |
| 履修取り下げについて | Course withdrawal |
| <p><可否> Possible <条件> A student who wishes to withdraw from the course needs to submit a Course Withdrawal Request Form by the end of November. 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).</p> | |
| 成績評価 | Grading |
| <p>Students will be graded following the five-step S-A-B-C-F grade evaluation system. S: 90-100%, A: 80-89%, B: 70-79%, C:60-69%, F: 59-0% Two quizzes: 30% (15% each) Oral presentation: 20% Written essay: 50%</p> | |
| 不可 (F) と欠席の基準 | Criteria for "Absent" & "Fail" grades |

A student will be given an “ Absent ” grade if he or she submits a Course Withdrawal Request Form by the end of November. This deadline does not apply to students who drop the class part-way through for an exceptional reason (e.g. illness, accident). A “ Fail ” grade is given to students who obtain a final score of less than 60%.

関連する科目 Related courses

教室 Class room

Check the Course Timetable.

授業内容 Content

1. Introduction
2. Our Solar System
3. Space Exploration
4. The Earth-Moon System
5. Spectroscopy and Telescopes
6. Asteroids
7. Mercury
8. Venus
9. Mars
10. Jupiter
11. Saturn
12. Uranus & Neptune
13. Trans-Neptunian Objects

教科書 Textbook

参考書 Recommended reading

連絡方法 Contact method

その他 Remarks

*See Course List and Graduation Requirements for your program for your enrollment year.

| 科目名 Course Title | |
|--------------------------|------------------------------------|
| Biochemistry III | |
| 学科・専攻 Department/Program | 受講年次 Grade |
| G30 Biology | 3rd |
| 授業形態 Class style | 必修・選択の別 Compulsory or Elective |
| Lecture | * See "Remarks" |
| 時間割コード Registration code | 開講期・曜日・時限 Semester, Day & Period |
| 0913011 | Fall semester Fri : 2 |
| 単位数 Credit | 科目区分 Course type |
| 2 | |
| 担当教員 Instructor | SAWADA Hitoshi |
| 所属研究室 Laboratory | Marine Developmental Biochemistry |
| 連絡先 Contact | ex.2514, hawada@bio.nagoya-u.ac.jp |
| 居室 Room | Building B, room 315 |
| 担当教員 Instructor | KOJIMA Seiji |
| 所属研究室 Laboratory | |
| 連絡先 Contact | |
| 居室 Room | |
| 担当教員 Instructor | UCHIDA Naoyuki |
| 所属研究室 Laboratory | |
| 連絡先 Contact | |
| 居室 Room | |

| 講義の目的とねらい Course purpose |
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| This course focused on the metabolisms of biomolecules (Part IV, METABOLISM in the textbook), including carbohydrates, lipids, amino acids/proteins, and nucleic acids. The students learn the concept of free energy, mechanism of ATP production, catabolism and anabolism of biomolecules. |
| 履修要件 Prerequisite |
| Prerequisite: Biochemistry I and II Basic knowledge of biology and chemistry |
| 履修取り下げについて Course withdrawal |

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| <可否> Possible <条件> Submit Course Withdrawal Request form by the sixth lecture. |
| 成績評価 Grading |
| Evaluation will be based on in-class participation, assignments and examinations. Presence will be marked. In-class participation will be considered an important element in overall grading. |
| 不可 (F) と欠席の基準 Criteria for "Absent" & "Fail" grades |
| Absent – based on submission of Course Withdrawal Request Form. Fail – based on “ Failed ” results of examinations and assignments. |
| 関連する科目 Related courses |
| Cell Biology I and II |
| 教室 Class room |
| Check the Course Timetable. A408 |

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| 授業内容 Content |
| <ol style="list-style-type: none"> 1. Bioenergetics 2. Glycolysis and the pentose phosphate pathway 3. Additional pathways in carbohydrate metabolism (Glycogen metabolism and gluconeogenesis) 4. The citric acid cycle 5. Mitochondrial ATP synthesis 6. Photosynthesis 7. Synthesis and degradation of lipids 8. Synthesis and degradation of amino acids 9. Regulation of fuel metabolism |

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| 教科書 Textbook |
| Principles of Biochemistry (2013), International Student Version (Fourth edition) by Donald Voet, Judith G. Voet, Charlotte W. Pratt (John Wiley & Sons) |
| 参考書 Recommended reading |
| Molecular Biology of the Cell, by B. Alberts et al. (Taylor & Francis; 5th Revised Edition) Biochemistry, 3rd Edition, by Donald Voet, Judith G. Voet (John Wiley & Sons) Principles of Biochemistry, by A.L. Lehninger et al. (W.H.Freeman & Co.) |
| 連絡方法 Contact method |
| E-mail (Hitoshi Sawada: hsawada@bio.nagoya-u.ac.jp) or phone call (052-789-2514). |
| その他 Remarks |
| *See Course List and Graduation Requirements for your program for your enrollment year. |