Nagasaki University Priority Graduate Programs (NUPGP)
for Foreign Students in Biomedical Sciences
(Master Course)

Syllabus

April, 2024 ～ March, 2025

Nagasaki University Graduate School of Biomedical Sciences

2024 Class calendar

2024.04.01

First semester：4/8（Mon）～8/7（Wed）

2023	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Apr	•	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	•	•	•	•

4/2 Entrance Ceremony
4/4 Orientation
4/8 First semester begins

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
May	•	•	•	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	•

5/25 TOEIC IP Test（Applicants only
*Examination fee is to be paid by the applicant.）

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Jun	•	•	•	•	•	•	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	•	•	•	•	•	•

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Jul	•	1	2	3	4	5	6
	7	8	9	10	11	12	13
	14	15	16	17	18	19	20
	21	22	23	24	25	26	27
	28	29	30	31	•	•	•

7/16 Days when classes are held on Mondays
Mid-July Training camp in Kokonoe Oita

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Aug	•	•	•	•	1	2	3
	4	5	6	7	8	9	10
	11	12	13	14	15	16	17
	18	19	20	21	22	23	24
	25	26	27	28	29	30	31

8/9~9/29 summer vacation

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Sep	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	•	•	•	•	•

9/20 Degree Award Ceremony
9/26 Orientation for Fall Admission(tentative)

school day
Preliminary day of classes
Last lecture day of the quarter

Number of lessons	Mon	Tue	Wed	Thu	Fri
	16	16	16	16	16

Second semester：9/30（Mon）～2/7（Fri）

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Oct	29	30	1	2	3	4	5
	6	7	8	9	10	11	12
	13	14	15	16	17	18	19
	20	21	22	23	24	25	26
	27	28	29	30	31	•	•

9/30 Second semester begins

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Nov	•	•	•	•	•	1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30

11/18 TOEIC IP Test（Applicants only
*Examination fee is to be paid by the applicant.）
11/5 Days when classes are held on Mondays

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Dec	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31	•	•	•	•

2024	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Jan	•	•	•	1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	31	•

1/17,21,23 canceling (lecture, class, etc.)

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Feb	•	•	•	•	•	•	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	•

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Mar	•	•	•	•	•	•	1
	2	3	4	5	6	7	8
	9	10	11	12	13	14	15
	16	17	18	19	20	21	22
	23	24	25	26	27	28	29
	30	31	•	•	•	•	•

3/21～ spring break
3/25 Degree Award Ceremony

Mon	Tue	Wed	Thu	Fri
16	16	16	16	16

2024 Graduate class timetable

NUPGP

First semester **Master's Cource / Doctoral Cource** **2024.2.14**

	Day of the week / School time	Mon	Tue	Wed	Thu	Fri
1 Quarter		4/8, 15, 22 5/13, 20, 27 6/3, 10	4/9, 16, 23 5/7, 14, 21, 28 6/4 ※4/3 (Preliminary day)	4/10, 17, 24 5/8, 15, 22, 29 6/5 ※5/1 (Preliminary day)	4/11, 18, 25 5/9, 16, 23, 30 6/6 ※5/2 (Preliminary day)	4/12, 19, 26 5/10, 17, 24, 31 6/7
	1 8:50～10:20					
	2 10:30～12:00	Molecular Biology of Neurodegenerative Diseases Ⅰ [Iwata, Shirotani]	Inorganic Chemistry in Health and Environmental Sciences Ⅲ [Toriba, Nishida, Fumoto]	Pharmacology and Drug Discovery Ⅰ [Kaneko, Tsukahara]	Cell Biology for Health Science Ⅲ [Takeda,Tanimura]	Natural Product Chemistry for Infectious Diseases Ⅰ [T.Tanaka, Saito, Matsuo]
	3 12:50～14:20		Bioorganic Chemistry for Environmental Science Ⅰ [M.Tanaka, Ueda]	Synthesis of Drugs for Infectious Diseases Ⅲ [Onomura, Kuriyama]		Pharmaceutical Organic Chemistry for Infectious Diseases Ⅲ [Ishihara, Fukuda, Komine]

	Day of the week / School time	MON	Tue	Wed	Thu	Fri
2 Quarter		6/17, 24 7/1, 8, 16, 22, 29 8/5	6/11, 18, 25 7/2, 9, 23, 30 8/6	6/12, 19, 26 7/3, 10, 17, 24 8/7 ※7/31 (Preliminary day)	6/13, 20, 27 7/4, 11, 18, 25 8/1 ※8/8 (Preliminary day)	6/14, 21, 28 7/5, 12, 19, 26 8/2
	1 8:50～10:20					
	2 10:30～12:00	Analytical Chemistry in Health and Environmental Sciences Ⅰ [Kuroda, Kishikawa]			Chemistry of Biofunctional Molecules for Infectious Diseases Ⅲ [Yamayoshi,T.Yamamoto]	
	3 12:50～14:20					

生命薬科学専攻(博士前期課程):特別コース / NUPGP

Second semester

	Day of the week / School time	MON	Tue	Wed	Thu	Fri
3 Quarter		9/30 10/7, 21, 28 11/5, 11, 18, 25	10/1, 8, 15, 22, 29 11/12, 19, 26	10/2, 9, 16, 23, 30 11/6, 13, 27 ※11/20 (Preliminary day)	10/3, 10, 17, 24, 31 11/7, 14, 21	10/4, 11, 18, 25 11/1, 8, 15, 22
	1 8:50～10:20					
	2 10:30～12:00			Pharmacology and Drug Discovery Ⅳ [Kaneko, Tsukahara]	Cell Biology for Health Science Ⅱ [Takeda, Tanimura]	Pharmaceutical Organic Chemistry for Infectious Diseases Ⅱ [Ishihara,Fukuda, Komine]
	3 12:50～14:20	Molecular Biology of Neurodegenerative Diseases Ⅳ [Iwata, Shirotani]	Inorganic Chemistry in Health and Environmental Sciences Ⅱ [Toriba, Nishida, Fumoto]	Synthesis of Drugs for Infectious Diseases Ⅱ [Onomura, Kuriyama]		Natural Product Chemistry for Infectious Diseases Ⅳ [T.Tanaka, Saito]

	Day of the week / School time	MON	Tue	Wed	Thu	Fri
4 Quarter		12/2, 9, 16, 23 1/6, 20, 27 2/3	12/3, 10, 17, 24 1/7, 14, 28 2/4	12/4, 11, 18 1/8, 15, 22, 29 2/5	11/28 12/5, 12, 19 1/9, 16, 30 2/6	11/29 12/6, 13, 20 1/10, 24, 31 2/7
	1 8:50～10:20					
	2 10:30～12:00				Chemistry of Biofunctional Molecules for Infectious Diseases Ⅱ [Yamayoshi, T.Yamamoto] Bioorganic Chemistry for Environmental Science Ⅳ [M.Tanaka, Ueda]	Resources of Marine Natural Medicines for Infectious Diseases [Yamada] Resources of Natural Medicines for Infectious Diseases [Maki]
	3 12:50～14:20	Analytical Chemistry in Health and Environmental Sciences Ⅳ [Kuroda, Kishikawa]				

Nagasaki University Priority Graduate Programs (NUPGP)
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学期／Semester	2024年度／Academic Year　1クォーター／First Quarter	曜日・校時／Day・Period	月／Mon 2
開講期間／Course duration	2024/04/01～2024/06/10		
必修選択／Required / Elective	選択／elective	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//1.0
時間割コード／Time schedule code	20245503150110	科目番号／Course code	55031501
科目ナンバリングコード／Numbering code	BMMP 51632_783		
授業科目名／Course title	Molecular Biology of Neurodegenerative I／Molecular Biology of Neurodegenerative Diseases		
編集担当教員／Instructor in charge of the course syllabus	岩田　修永／Iwata Nobuhisa, 城谷　圭朗／Shirotani Keiro		
授業担当教員名（科目責任者）／Instructor in charge of the course	岩田　修永／Iwata Nobuhisa		
授業担当教員名（オムニバス科目等）／Instructor(s)	岩田　修永／Iwata Nobuhisa, 城谷　圭朗／Shirotani Keiro		
科目分類／Course Category	特別コースの授業科目／NUPGP		
対象年次／Intended year	1, 2	講義形態／Course style	講義／Lecture
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	M1, M2		
担当教員Eメールアドレス/E-mail address	iwata-n@nagasaki-u.ac.jp, keiroshiro@nagasaki-u.ac.jp		
担当教員研究室/Office	Faculty of Pharmaceutical Sciences, 2nd floor, Dept. of Genome-based Drug Discovery		
担当教員TEL/Tel	095-819-2435 (Iwata), 095-819-2436 (Shirotani)		
担当教員オフィスアワー/Office hours	Mon-Fri. 13:00-17:00 (A prior booking by e-mail is essential.)		
授業の概要及び位置づけ/Course overview	Better understanding of molecular mechanisms of dementia and neurodegenerative diseases in addition to their clinical symptom and pathological features is requisite for development of more effective and safer medication. This class focuses on dementia and neurodegenerative diseases, such as Alzheimer's disease, and provides you with detailed molecular mechanisms and recent topics of the disease researches. A common keyword to the diseases is "proteases", which play critical roles in the disease onsets and developments. At the end of this class, you will be aware that down-regulation or up-regulation of the proteases responsible for metabolism of pathogenic peptides would be promising avenues for medication. This class also provides much knowledge and information how we can utilize biotechnological techniques for development of new drugs. ※The lecture will be provided in English.		
授業到達目標/Course goals	To understand and to be able to summarize molecular mechanisms of the diseases and potential of biotechnology against the diseases. (DP1)		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Active participation & brief examination at the end of the class 40%, and report 60% If the lecture format is online from face-to-face, the evaluation method will be determined separately.		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Preparation: It is necessary to get a better understanding by reading references and related review articles in the paper you selected. (2h) Review: Re-examine something pointed out by lecturers or raised by discussion, and make sure your understanding. (2h)		
キーワード/Keywords	dementia, neurodegenerative diseases, Alzheimer's disease, neuropathologies, animal models, proteases, drug discovery, clinical biomarker		

教科書・教材・参考書/Materials	A handout of selected PowerPoint slides (in English) used in each lecture. http://www.alzforum.org/
受講要件（履修条件）/Prerequisites	To whom take this class must have fundamental knowledge on neurobiology and molecular biology.
アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　　(FAX) 095-819-2948
備考（URL）/Remarks (URL)	Face-to-Face class When a lecture is cancelled by the school-wide action due to unforeseen circumstances, a supplementary lecture will be provided on next Saturday.
学生へのメッセージ/Message for students	In most cases this research field is different from yours, but I hope you learn how to go ahead with disease researches.
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	The clinical symptoms and the pathological features of neurodegenerative diseases (1)
2nd	The clinical symptoms and the pathological features of neurodegenerative diseases (2)
3rd	The causal genes responsible for Alzheimer's disease pathogenesis and their functions [Shirotani]
4th	Molecular mechanism of the pathogenesis of Alzheimer's disease [Shirotani]
5th	In vivo analysis of pathogenic mechanism of Alzheimer's disease using animal models (1)
6th	In vivo analysis of pathogenic mechanism of Alzheimer's disease using animal models (2)
7th	Current status of biomarkers and disease-modifying drugs for Alzheimer's disease
8th	Recent advances of Alzheimer's disease research [Shirotani]

学期／Semester	2024年度／Academic Year　2クォーター／Second Quarter	曜日・校時／Day・Period	月／Mon 2
開講期間／Course duration	2024/06/11～2024/09/29		
必修選択／Required / Elective	選択／elective	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//1.0
時間割コード／Time schedule code	20245503100013	科目番号／Course code	55031000
科目ナンバリングコード／Numbering code	BMMP 53332_782		
授業科目名／Course title	Analytical Chemistry I／Analytical Chemistry in Health and Environmental Sciences I		
編集担当教員／Instructor in charge of the course syllabus	黒田　直敬／Naotaka Kuroda, 岸川　直哉／Kishikawa Naoya		
授業担当教員名（科目責任者）／Instructor in charge of the course	黒田　直敬／Naotaka Kuroda		
授業担当教員名（オムニバス科目等）／Instructor(s)	黒田　直敬／Naotaka Kuroda, 岸川　直哉／Kishikawa Naoya		
科目分類／Course Category	講義科目（区分Ｄ）, 特別コースの授業科目／NUPGP		
対象年次／Intended year	1, 2	講義形態／Course style	講義／Lecture
教室／Class room	〔薬学〕本館５階リフレッシュルーム／Pharmaceutical School 5th floor refresh room		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	kishika@nagasaki-u.ac.jp		
担当教員研究室/Office	Analytical Chemistry		
担当教員TEL/Tel	095-819-2445		
担当教員オフィスアワー/Office hours	Mon.～Fri. 13:30-17:00		
授業の概要及び位置づけ/Course overview	Understanding of (1) the concepts and principles underlying the highly sensitive detection techniques using luminescence, and (2) their typical application to biomedical and environmental analysis.		
授業到達目標/Course goals	1)　Learn the theories based on the principles of various analytical techniques and to be able to explain the characteristics of these techniques (DP-1, DP-2). 2)　To be able to familiarize and explain the important details of specific methods of biomedical analysis (DP-1, DP-3).		
知識・技能以外に、この授業を通して身につけて欲しい力（１つ以上３つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　■国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	□A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above ■F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	The achievement level of the above-mentioned target (DP) is evaluated by following standards. Active participation (30%) and reports (70%). Students whose unexcused absences exceed 30% of the class will receive an automatic D for the course.		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Prior learning: Prepare lessons related to the contents of the lecture using textbooks of analytical chemistry (2 hours). After the lecture: Read academic papers related to the lecture and summarize the contents (2 hours).		
キーワード/Keywords	HPLC, fluorescence, chemiluminescence		
教科書・教材・参考書/Materials	Reference Book: Modern Derivatization Methods for Separation Sciences, Edited by T. Toyo'oka, 1999, JohnWiley & Sons Ltd.;　Chemiluminescence in Analytical Chemistry, Edited by A.M. Garcia-Campana, W.R.G. Baeyens, 2001, Marcel Dekker Inc.		
受講要件（履修条件）/Prerequisites	None		

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information (TEL)095-819-2006 (FAX)095-819-2948 (E-
備考 (URL) /Remarks (URL)	
学生へのメッセージ/Message for students	None
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Introduction to detection techniques based on luminescence for biomedical and environmental analysis.
2nd	Basics of luminescence
3rd	Fluorescence in analytical chemistry
4th	Chemiluminescence and bioluminescence in analytical chemistry
5th	Latest technologies of luminescence in analytical chemistry
6th	Application of luminescence to biomedical and environmental analysis (1)
7th	Application of luminescence to biomedical and environmental analysis (2)
8th	General overview and preparing of a report

学期／Semester	2024年度／Academic Year 1クォーター／First Quarter	曜日・校時／Day・Period	火／Tue 3
開講期間／Course duration	2024/04/01～2024/06/10		
必修選択／Required / Elective	選択／elective	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//1.0
時間割コード／Time schedule code	20245503120008	科目番号／Course code	55031200
科目ナンバリングコード／Numbering code	BMMP 51332_781		
授業科目名／Course title	Bioorganic Chemistry I／Bioorganic Chemistry for Environmental Science I		
編集担当教員／Instructor in charge of the course syllabus	田中　正一／Tanaka Masakazu, 上田　篤志／Ueda Atsushi		
授業担当教員名（科目責任者）／Instructor in charge of the course	田中　正一／Tanaka Masakazu		
授業担当教員名（オムニバス科目等）／Instructor(s)	田中　正一／Tanaka Masakazu, 上田　篤志／Ueda Atsushi		
科目分類／Course Category	講義科目（区分D）, 特別コースの授業科目／NUPGP		
対象年次／Intended year	1, 2	講義形態／Course style	講義／Lecture
教室／Class room	〔薬学〕本館３階セミナー室／Pharmaceutical School 3rd floor seminar room		
対象学生（クラス等） /Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	matanaka@ nagasaki-u.ac.jp		
担当教員研究室/Office	Pharmaceutical Chemistry		
担当教員TEL/Tel	095-819-2423		
担当教員オフィスアワー/Office hours	Tuesday 16:00-18:00		
授業の概要及び位置づけ/Course overview	To provide the students with fundamental knowledge of principles and methods in bioorganic chemistry.		
授業到達目標/Course goals	To understand the three-dimensional structures of bioorganic molecules (small molecules, oligopeptides, and nano-molecules), how the weak interactions can be harnessed to program complex molecular behaviors, and method how to design and synthesize bioorganic molecules and biomaterials.		
知識・技能以外に、この授業を通して身につけて欲しい力（１つ以上３つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence □倫理観／Ethics □多様性の理解／Understanding Diversity ■主体性／Autonomy □協働性／Cooperativeness ■考えをやり取りする力／Ability to exchange ideas □国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Contribution in group discussion (50%), and completion of assignments (50%)		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review			
キーワード/Keywords	amino acid, oligomer, secondary structure, molecular recognition, catalysis, nanomedicine, nanotechnology, biomaterials		
教科書・教材・参考書/Materials	PowerPoint slides & Printed documents		
受講要件（履修条件）/Prerequisites			
アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948		
備考（URL）/Remarks (URL)	Face to face class		

学生へのメッセージ/Message for students	
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Introduction: natural amino acids and peptides [M. Tanaka]
2nd	Non-proteinogenic amino acids and their peptides, and their secondary structures [M.
3rd	Foldamers, and alpha,alpha-disubstituted amino acids [M. Tanaka]
4th	Chiral cyclic amino acids and their peptides [M. Tanaka]
5th	Design of chiral peptide catalysts [M. Tanaka]
6th	Natural product synthesis [Ueda]
7th	Natural product synthesis [Ueda]
8th	Natural product synthesis [Ueda]

学期／Semester	2024年度／Academic Year　1クォーター／First Quarter	曜日・校時／Day・Period	水／Wed 2
開講期間／Course duration	2024/04/01～2024/06/10		
必修選択／Required / Elective	選択／elective	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//1.0
時間割コード／Time schedule code	20245503173109	科目番号／Course code	55031731
科目ナンバリングコード／Numbering code	BMMP 51232_784		
授業科目名／Course title	Pharmacology and Drug Discovery I／Pharmacology and Drug Discovery I		
編集担当教員／Instructor in charge of the course syllabus	金子　雅幸／Kaneko Masayuki, 塚原　完／Tsukahara Tamotsu		
授業担当教員名（科目責任者）／Instructor in charge of the course	金子　雅幸／Kaneko Masayuki		
授業担当教員名（オムニバス科目等）／Instructor(s)	金子　雅幸／Kaneko Masayuki, 塚原　完／Tsukahara Tamotsu		
科目分類／Course Category	特別コースの授業科目／NUPGP		
対象年次／Intended year	1, 2	講義形態／Course style	講義／Lecture
教室／Class room	〔薬学〕本館４階セミナー室／Pharmaceutical School 4th floor seminar room		
対象学生（クラス等）　/Intended year (class)	1, 2		
担当教員Eメールアドレス/E-mail address	m-kaneko@nagasaki-u.ac.jp (Kaneko) ttamotsu@nagasaki-u.ac.jp (Tsukahara)		
担当教員研究室/Office	Pharmacology and Therapeutic Innovation (Kaneko, Tsukahara)		
担当教員TEL/Tel	095-819-2421 (Kaneko) 095-819-2473 (Tsukahara)		
担当教員オフィスアワー/Office hours	Accept any question by e-mail		
授業の概要及び位置づけ/Course overview	Aim: To teach the new approaches of drug discovery against some topics Goal: To understand and to be able to summarize the mechanisms underlying pain and the therapeutic innovation in drug discovery		
授業到達目標/Course goals	The scope of therapeutic innovation reaches beyond the focus of pharmaceuticals, and its research and development, to include innovations in drugs, devices, and diagnostics, as well as global regulatory issues.		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Active commitment (50%) to the lecture and examination (50%) on each topic		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Difficult to keep up with the class without studying the material in advance and doing the reviews. Preparation and review is very important.		
キーワード/Keywords	Stroke, Cancer, Medicinal chemistry, Nano Material, Lifestyle disease		
教科書・教材・参考書/Materials	None		
受講要件（履修条件）/Prerequisites	None		

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information (TEL)095-819-2006 (FAX)095-819-2948 (E-
備考 (URL) /Remarks (URL)	Preparation and review are essential for the lecture. LACS is used to communicate with students, so please check it regularly. Attendance will be checked in person using the attendance book handed out during the lecture or by IC card. In addition, students who do not submit assignments posted on LACS will not receive credit, so they must submit them by the deadline.
学生へのメッセージ/Message for students	None
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1 (4/10)	New approaches for the drug discovery against dementia (Kaneko)
2 (4/17)	New approaches for the drug discovery against stroke (Tsukahara)
3 (4/24)	New approaches for the drug discovery against life style diseases (Tsukahara)
4 (5/8)	New approaches for the drug discovery against cancer (Tsukahara)
5 (5/16) Thursday, 5th school hour	Cancer immunotherapy that overcome tumor heterogeneity (Ikeda)
6 (5/22)	Bioactive lipids and their application in medicine (Tsukahara)
7 (5/29)	Nanomaterials and their application in medicine (Tsukahara)
8 (6/5)	Bio-ventures in the new generation (regenerative medicine and cell medicine) (Tsukahara)

学期／Semester	2024年度／Academic Year　1クォーター／First Quarter	曜日・校時／Day・Period	金／Fri 2
開講期間／Course duration	2024/04/01～2024/06/10		
必修選択／Required / Elective	選択／elective	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//1.0
時間割コード／Time schedule code	20245503160012	科目番号／Course code	55031600
科目ナンバリングコード／Numbering code	BMMP 52132_785		
授業科目名／Course title	Natural Product Chemistry I／Natural Product Chemistry for Infectious Diseases I		
編集担当教員／Instructor in charge of the course syllabus	薬師寺　文華／yakushiji fumika, 松尾　洋介／Matsuo Yosuke, 齋藤　義紀／Saito Yoshinori		
授業担当教員名（科目責任者）／Instructor in charge of the course	薬師寺　文華／yakushiji fumika		
授業担当教員名（オムニバス科目等）／Instructor(s)	薬師寺　文華／yakushiji fumika, 松尾　洋介／Matsuo Yosuke, 齋藤　義紀／Saito Yoshinori		
科目分類／Course Category	講義科目（区分D）, 特別コースの授業科目／NUPGP		
対象年次／Intended year	1, 2	講義形態／Course style	講義／Lecture
教室／Class room	〔薬学〕本館３階セミナー室／Pharmaceutical School 3rd floor seminar room		
対象学生（クラス等）　/Intended year (class)	NUPGP		
担当教員Eメールアドレス/E-mail address	Fumika Yakushiji: ****@nagasaki-u.ac.jp Yoshinori Saito: saiyoshi@nagasaki-u.ac.jp Yosuke Matsuo: y-matsuo@nagasaki-u.ac.jp		
担当教員研究室/Office	Chemical Biology and Medicinal Chemistry		
担当教員TEL/Tel	095-819-2432 (Yakushiji), 2433 (Saito), 2434 (Matsuo)		
担当教員オフィスアワー/Office hours	Mon-Fri: 10:30-16:00 Accepted by e-mail		
授業の概要及び位置づけ/Course overview	Master the biosynthesis pathway, separation, structure elucidation and functions of natural products.		
授業到達目標/Course goals	To explain the biosynthesis, classification, separation, structure determination, and function of natural products (DP1)		
知識・技能以外に、この授業を通して身につけて欲しい力（１つ以上３つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　□主体性／Autonomy　□協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Achievement of class goal is evaluated by test and problems (including those in LACS) and report (80%) and attendance(20%)		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Preparation: find examples of information concerning each theme in SciFinder (2 h). Review: study examples of separation, structure determination and evaluation of activities in research papers (2 h).		
キーワード/Keywords	biosynthesis, natural products, secondary metabolites, polyphenol		
教科書・教材・参考書/Materials	reference book: Dewick, Medicinal Natural Product Chemistry		
受講要件（履修条件）/Prerequisites			

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948 （E-MAIL）support@ml.nagasaki-u.ac.jp
備考（URL）/Remarks (URL)	http://www.ph.nagasaki-u.ac.jp/lab/natpro/index-j.html
学生へのメッセージ/Message for students	
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Pending
2nd	Pending
3rd	Pending
4th	Pending
5th	Chemistry of terpenois (1)
6th	Chemistry of terpenois (2)
7th	Functions of natural products
8th	Computational calculation for structure determination.

学期／Semester	2024年度／Academic Year　3クォーター／Third Quarter	曜日・校時／Day・Period	火／Tue 3
開講期間／Course duration	2024/09/30～2024/11/27		
必修選択／Required / Elective	選択／elective	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//1.0
時間割コード／Time schedule code	20245503141007	科目番号／Course code	55031410
科目ナンバリングコード／Numbering code	BMMP 53242_787		
授業科目名／Course title	Inorganic Chemistry II／Inorganic Chemistry in Health and Environmental Sciences II		
編集担当教員／Instructor in charge of the course syllabus	鳥羽　陽／Toriba Akira, 麓　伸太郎／Fumoto Shintaro, 西田　孝洋／Nishida Koyo, 安孫子　ユミ／Abiko Yumi		
授業担当教員名（科目責任者）／Instructor in charge of the course	鳥羽　陽／Toriba Akira		
授業担当教員名（オムニバス科目等）／Instructor(s)	鳥羽　陽／Toriba Akira, 麓　伸太郎／Fumoto Shintaro, 西田　孝洋／Nishida Koyo, 安孫子　ユミ／Abiko Yumi		
科目分類／Course Category	講義科目（区分D）, 特別コースの授業科目／NUPGP		
対象年次／Intended year	1, 2	講義形態／Course style	講義／Lecture
教室／Class room	〔薬学〕本館５階リフレッシュルーム／Pharmaceutical School 5th floor refresh room		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	toriba@nagasaki-u.ac.jp (Toriba), yumi.abiko.11@nagasaki-u.ac.jp (Abiko), sfumoto@nagasaki-u.ac.jp (Fumoto)		
担当教員研究室/Office	Hygienic Chemistry, Pharmaceutics		
担当教員TEL/Tel	095-819-2441		
担当教員オフィスアワー/Office hours	Monday－Friday 0:20－0:50 p.m. or by appointment		
授業の概要及び位置づけ/Course overview	The aims of this subject are a) to be aware of what metal and metalloid elements are important in biology and medicine, and b) to give you state-of-the-art knowledge of the biological and environmental inorganic chemistry.		
授業到達目標/Course goals	The goals of this subject are a) a broad understanding of metal and metalloid elements in biological systems and medicine, b) to understand what essential trace elements are and explain the biological functions of essential trace elements with showing an example, and c) to understand environmental pollution by heavy metals and the pollution-induced diseases, and d) to understand drug delivery systems for effective drug therapy. (DP1-DP4)		
知識・技能以外に、この授業を通して身につけて欲しい力（１つ以上３つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	The achievement level of the above-mentioned target is evaluated by following standards: midterm and/or final exam (80%) and report (20%). (NOTICE : On-time regular attendance is required throughout the class.)		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Preparation before lecture (2 hour). Review after lecture (2 hour).		
キーワード/Keywords	Metal, Metalloid, Essential element, Environmental pollution, Pollution-induced diseases, Drug delivery system		
教科書・教材・参考書/Materials	Textbook, Teaching Material, and Reference Book / Textbook and reference materials are not specified.		
受講要件（履修条件）/Prerequisites	Nothing		
アクセシビリティ/Accessibility (for students with disabilities)			

備考（URL）/Remarks (URL)	When classes are cancelled due to unforeseen circumstances such as a typhoon, makeup classes may be held on Saturday.
学生へのメッセージ/Message for students	Basically, the instructors will give handout s of selected PowerPoint slides to be used in each lecture out to the attendees.
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st (10/1, 3rd period)	Overview: Metal and Metalloid Elements in Biology, Medicine and Environment (Toriba), face-to-face
2nd (10/8, 3rd period)	Environmental pollution by heavy metals I (Toriba), face-to-face
3rd (10/15, 3rd period)	Environmental pollution by heavy metals II (Toriba), face-to-face
4th (10/22, 3rd period)	Pollution-related health damage (Toriba), face-to-face
5th (10/29, 3rd period)	Essential Trace Elements in Biological Systems I (Abiko), face-to-face
6th (11/12, 3rd period)	Essential Trace Elements in Biological Systems II (Abiko), face-to-face
7th (11/19, 3rd period)	Drug Delivery Systems (Fumoto), face-to-face
8th (11/26, 3rd period)	Review, face-to-face

学期／Semester	2024年度／Academic Year　3クォーター／Third Quarter	曜日・校時／Day・Period	水／Wed 3
開講期間／Course duration	2024/09/30～2024/11/27		
必修選択／Required / Elective	選択／elective	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//1.0
時間割コード／Time schedule code	20245503191003	科目番号／Course code	55031910
科目ナンバリングコード／Numbering code	BMMP 51542_781		
授業科目名／Course title	Synthesis of Drugs II／Synthesis of Drugs for Infectious Diseases II		
編集担当教員／Instructor in charge of the course syllabus	尾野村　治／Osamu Onomura, 栗山　正巳／Kuriyama Masami, 山本　耕介／Yamamoto Kosuke		
授業担当教員名（科目責任者）／Instructor in charge of the course	尾野村　治／Osamu Onomura		
授業担当教員名（オムニバス科目等）／Instructor(s)	尾野村　治／Osamu Onomura, 栗山　正巳／Kuriyama Masami, 山本　耕介／Yamamoto Kosuke		
科目分類／Course Category	講義科目（区分D）, 特別コースの授業科目／NUPGP		
対象年次／Intended year	1, 2	講義形態／Course style	講義／Lecture
教室／Class room	〔薬学〕本館３階セミナー室／Pharmaceutical School 3rd floor seminar room		
対象学生（クラス等）　/Intended year (class)	1st, 2nd		
担当教員Eメールアドレス/E-mail address	onomura@nagasaki-u.ac.jp		
担当教員研究室/Office	Synthetic Chemistry for Pharmaceuticals		
担当教員TEL/Tel	095-819-2429		
担当教員オフィスアワー/Office hours	Mon. - Fri. 10:30 - 18:00		
授業の概要及び位置づけ/Course overview	You learn systematically selective reactions which synthesize complicated organic molecules and are necessary for development of new drugs for infectious diseases. Professional education		
授業到達目標/Course goals	(1) You can explain representative asymmetric reactions (DP-3)|. (2) You can get practical knowledge necessary for invention of new drugs (DP-1).		
知識・技能以外に、この授業を通して身につけて欲しい力（１つ以上３つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	The Achievement level of the above-mentioned target by Exercise (30%), Test (30%), Report (40%).		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Prepare: getting basic knowledge about chemistry of the related field (2h) Review: summarizing points of the class to broaden the chemical knowledge (2h)		
キーワード/Keywords	None		
教科書・教材・参考書/Materials	Documents prepared from recent literatures are distributed.		
受講要件（履修条件）/Prerequisites	None		

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948 （E-MAIL）support@ml.nagasaki-u.ac.jp
備考（URL）/Remarks (URL)	
学生へのメッセージ/Message for students	In advance, master basic knowledge of organic chemistry.
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1	Selective organic synthesis utilizing the characteristics of nitrogen I (Onomura)
2	Selective organic synthesis utilizing the characteristics of nitrogen II (Onomura)
3	Selective organic synthesis utilizing the characteristics of nitrogen III (Onomura)
4	Synthesis of optically active cyclic amino compounds (Onomura)
5	Selective organic synthesis utilizing the characteristics of silicon (Kuriyama)
6	Selective organic synthesis utilizing the characteristics of borone (Kuriyama)
7	Selective organic synthesis utilizing the characteristics of fluorine (Kuriyama)
8	Synthesis of sugars (Yamamoto)

学期／Semester	2024年度／Academic Year　3クォーター／Third Quarter	曜日・校時／Day・Period	木／Thu 2
開講期間／Course duration	2024/09/30～2024/11/27		
必修選択／Required / Elective	選択／elective	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//1.0
時間割コード／Time schedule code	20245503131001	科目番号／Course code	55031310
科目ナンバリングコード／Numbering code	BMMP 51142_783		
授業科目名／Course title	Cell Biology for Health Science II／Cell Biology for Health Science II		
編集担当教員／Instructor in charge of the course syllabus	武田　弘資／TAKEDA Kosuke, 谷村　進／Tanimura Susumu		
授業担当教員名（科目責任者）／Instructor in charge of the course	武田　弘資／TAKEDA Kosuke		
授業担当教員名（オムニバス科目等）／Instructor(s)	武田　弘資／TAKEDA Kosuke, 谷村　進／Tanimura Susumu		
科目分類／Course Category	講義科目（区分D）, 特別コースの授業科目／NUPGP		
対象年次／Intended year	1, 2	講義形態／Course style	講義／Lecture
教室／Class room	〔薬学〕本館４階セミナー室／Pharmaceutical School 4th floor seminar room		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	takeda-k@nagasaki-u.ac.jp		
担当教員研究室/Office	Cell Regulation		
担当教員TEL/Tel	095-819-2417		
担当教員オフィスアワー/Office hours	At any time by e-mail		
授業の概要及び位置づけ/Course overview	To learn the mechanisms and significance of intracellular signal transduction regulating various cellular functions.		
授業到達目標/Course goals	To undestand and to be able to review the mechanisms of intracellular signal transduction and their dysregulation in various diseases (DP1, 2, ,3, 5).		
知識・技能以外に、この授業を通して身につけて欲しい力（１つ以上３つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　■多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Active participation in and contribution to the class (40%), Report (60%)		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Preparation: read related research papers (2 h). Review: review class materials and reference books, and read again related research papers (2 h)		
キーワード/Keywords	signal transduction, cell motility, stress response, cancer, inflammation, metabolism, mitochondria		
教科書・教材・参考書/Materials	Reference book: Molecular Biology of the Cell 5th Edition		
受講要件（履修条件）/Prerequisites	Those who take this class must have fundamental knowledge on cell biology and molecular biology.		
アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　　（FAX）095-819-2948 （E-MAIL）support@ml.nagasaki-u.ac.jp		

備考（URL）/Remarks (URL)	All classes are held in person.
学生へのメッセージ/Message for students	
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st: Oct 5	Overview [Takeda]
2nd: Oct 12	Stress signaling and inflammation [Takeda]
3rd: Oct 19	Mechanisms of signal transduction-1 [Takeda]
4th: Oct 26	Mechanisms of signal transduction-2 [Takeda]
5th: Nov 2	Mechanisms of signal transduction-3 [Takeda]
6th: Nov 9	Mechanisms of signal transduction-4 [Takeda]
7th: Nov 16	Mechanisms of signal transduction-5 [Takeda]
8th: Nov 30	Regulation of cell motility [Tanimura]

学期／Semester	2024年度／Academic Year　4クォーター／Fourth Quarter	曜日・校時／Day・Period	木／Thu 2
開講期間／Course duration	2024/11/28～2025/03/31		
必修選択／Required / Elective	選択／elective	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//1.0
時間割コード／Time schedule code	20245503133006	科目番号／Course code	55031330
科目ナンバリングコード／Numbering code	BMMP 53142_782		
授業科目名／Course title	Chemistry of Biofunctional Molecules II／Chemistry of Biofunctional Molecules for Infectious Diseases II		
編集担当教員／Instructor in charge of the course syllabus	山吉　麻子／Yamayoshi Asako, 山本　剛史／Yamamoto Tsuyoshi, 三瓶　悠／Mikame Yu		
授業担当教員名（科目責任者）／Instructor in charge of the course	山吉　麻子／Yamayoshi Asako		
授業担当教員名（オムニバス科目等）／Instructor(s)	山吉　麻子／Yamayoshi Asako, 山本　剛史／Yamamoto Tsuyoshi, 三瓶　悠／Mikame Yu		
科目分類／Course Category	講義科目（区分D）, 特別コースの授業科目／NUPGP		
対象年次／Intended year	1, 2	講義形態／Course style	講義／Lecture
教室／Class room	〔薬学〕本館４階セミナー室／Pharmaceutical School 4th floor seminar room		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	asakoy@nagasaki-u.ac.jp; tsuyoshi.yamamoto@nagasaki-u.ac.jp; yu_mikame@nagasaki-u.ac.jp		
担当教員研究室/Office	Chemistry of Biofunctional Molecules		
担当教員TEL/Tel	095-819-2438; 095-819-2439		
担当教員オフィスアワー/Office hours	12:00-18:00		
授業の概要及び位置づけ/Course overview	To study and discuss about scientific technology for functional analysis of proteins and nucleic acids. 1. This class will be provided in English. 2. Under the guidance of a faculty member, you may have a chance to visit overseas research institutes to learn experimental techniques, collect data, and exchange information.		
授業到達目標/Course goals	・ You can explain the basic principles of various measurement / analysis methods and can operate accurately according to the protocol (DP2-4)・ You can utilize databases, etc. to obtain, organize, and utilize necessary information (DP1-5)		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　■国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over ■B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Report (50 points) + Attitude (50 points) . Out of a total of 100 points, pass 60 points		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	【Preparation】Be ready to participate in the class activities using English. 英語を使って授業に参加できるように準備してきてください。(2.5h) 【Review】Review what you learned for group discussions and presentations. グループ討論やプレゼンテーションに向けて学んだことを復習してください。(2.5h)		
キーワード/Keywords	Proteins, Nucleic acids, Drugs		
教科書・教材・参考書/Materials	Scientific journals, Printed matters		
受講要件（履修条件）/Prerequisites			

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948
備考（URL）/Remarks (URL)	Lectures will be given face-to-face. Supplementary classes can be held on Saturday in case of school closure due to unexpected reasons (e.g. natural disasters). Due to COVID-19 spread, class format will be inconsistent. Either online or face-to-face (or possibly other formats) will be announced
学生へのメッセージ/Message for students	

授業計画詳細／Course Schedule

回(日時)／Time(date and time)	授業内容／Contents
1st	Functional outline and detection techniques of biogenic proteins Lectures will be given face-to-face.
2nd	Analytical technology of proteins and its applications (1) Lectures will be given face-to-face.
3rd	Analytical technology of proteins and its applications (2) Lectures will be given face-to-face.
4th	Functional outline and modification techniques of biogenic nucleic acids Lectures will be given face-to-face.
5th	Analytical technology of nucleic acids and its applications Lectures will be given face-to-face.
6th	Analytical technology of nucleic acids and its applications (2) Lectures will be given face-to-face.
7th	Nucleic acid and protein drugs for treatment of cancers and infectious diseases Lectures will be given face-to-face.
8th	Discussion of lecture Lectures will be given face-to-face.

学期／Semester	2024年度／Academic Year　3クォーター／Third Quarter	曜日・校時／Day・Period	金／Fri 2
開講期間／Course duration	2024/09/30～2024/11/27		
必修選択／Required / Elective	選択／elective	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//1.0
時間割コード／Time schedule code	20245503171002	科目番号／Course code	55031710
科目ナンバリングコード／Numbering code	BMMP 51442_781		
授業科目名／Course title	Pharmaceutical Organic Chemistry II／Pharmaceutical Organic Chemistry for Infectious Diseases II		
編集担当教員／Instructor in charge of the course syllabus	石原　淳／Ishihara Jun, 福田　隼／Hayato Fukuda, 小嶺　敬太／Komine Keita		
授業担当教員名（科目責任者）／Instructor in charge of the course	石原　淳／Ishihara Jun		
授業担当教員名（オムニバス科目等）／Instructor(s)	石原　淳／Ishihara Jun, 福田　隼／Hayato Fukuda, 小嶺　敬太／Komine Keita		
科目分類／Course Category	講義科目（区分D）, 特別コースの授業科目／NUPGP		
対象年次／Intended year	1, 2	講義形態／Course style	講義／Lecture
教室／Class room	〔薬学〕本館３階セミナー室／Pharmaceutical School 3rd floor seminar room		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	jishi@nagasaki-u.ac.jp		
担当教員研究室/Office	Pharmaceutical Organic Chemistry		
担当教員TEL/Tel	819-2426		
担当教員オフィスアワー/Office hours	Mon.-Fri. 13:00-18:00		
授業の概要及び位置づけ/Course overview	The synthesis of natural products is a very important research field of drug discovery. In this class, the students will learn the synthesis of natural products possess useful biological activities for developing drugs for the treatment of infectious diseases.		
授業到達目標/Course goals	1) An understanding of synthetic plans and strategies. (DP-3) 2) An understanding of synthetic reactions. (DP-1) 3) An understanding of synthetic routes. (DP-1,6)		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　■国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	The achievement level of the above-mentioned target is evaluated by following standards. enthusiastic attitude (30%) and report (70%)		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Prepare: getting basic knowledge about chemistry of the related field (2h) Review: summarizing points of the class to broaden the chemical knowledge　(2h)		
キーワード/Keywords	pharmaceutical chemistry, synthesis, drug discovery		
教科書・教材・参考書/Materials	Journals (JACS, JOC, OL, TL, Angew. Chem. Int. Ed., Chem. Commun, etc.)		
受講要件（履修条件）/Prerequisites			
アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　　（FAX）095-819-2948		

備考（URL）/Remarks (URL)	Classes are held face-to-face. In the event of whole university cancellation of classes due to typhoons or other unforeseen circumstances, supplementary classes may be held on Saturdays.
学生へのメッセージ/Message for students	
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Drug candidates and their syntheses (Ishihara)
2nd	Drug candidates and their syntheses (Ishihara)
3rd	Drug candidates and their syntheses (Ishihara)
4th	Drug candidates and their syntheses (Komine)
5th	Drug candidates and their syntheses (Komine)
6th	Drug candidates and their syntheses (Fukuda)
7th	Drug candidates and their syntheses (Fukuda)
8th	Drug candidates and their syntheses (Fukuda)

学期／Semester	2024年度／Academic Year　4クォーター／Fourth Quarter	曜日・校時／Day・Period	金／Fri 2
開講期間／Course duration	2024/11/28～2025/03/31		
必修選択／Required / Elective	選択／elective	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//0.5
時間割コード／Time schedule code	20245503180004	科目番号／Course code	55031800
科目ナンバリングコード／Numbering code	BMMP 52222_785		
授業科目名／Course title	Resources of Marine Natural Medicines／Resources of Marine Natural Medicines for Infectious Diseases		
編集担当教員／Instructor in charge of the course syllabus	山田　耕史／Yamada Koji		
授業担当教員名（科目責任者）／Instructor in charge of the course	山田　耕史／Yamada Koji		
授業担当教員名（オムニバス科目等）／Instructor(s)	山田　耕史／Yamada Koji		
科目分類／Course Category	講義科目（区分Ｄ），特別コースの授業科目／NUPGP		
対象年次／Intended year	1, 2	講義形態／Course style	講義／Lecture
教室／Class room	薬用植物園２階セミナー室／Medical Plants Garden 2nd floor seminar room		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	kyamada@nagasaki-u.ac.jp		
担当教員研究室/Office	Medicinal Plant Biochemistry		
担当教員TEL/Tel	095-819-2462		
担当教員オフィスアワー/Office hours	Monday 13:00-14:00		
授業の概要及び位置づけ/Course overview	To teach the marine natural medicines for infectious diseases		
授業到達目標/Course goals	To understand and to be able to summarize underlying marine natural medicines (DP1-DP4)		
知識・技能以外に、この授業を通して身につけて欲しい力（１つ以上３つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　■多様性の理解／Understanding Diversity　□主体性／Autonomy　□協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	□A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above ■F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	The achievement level of the above-mentioned target is evaluated by following standards. Report (80%) and Approach attitude to the problem of class (20%) , To pass, you need a scoree of 60 points (out of 100 points).		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Preparation before lecture (1 hour), Review after lecture (1 hour)		
キーワード/Keywords	Marine Natural Products, antimicrobial, antitumor, anti-inflammatory, analgesia, immunomodulation, allergy, anti-viral, antiplasmodial agents		
教科書・教材・参考書/Materials	none		
受講要件（履修条件）/Prerequisites	It is desirable to have learned the foundation of organic chemistry.		
アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　　（FAX）095-819-2948 （E-MAIL）support@ml.nagasaki-u.ac.jp		

備考（URL）/Remarks (URL)	none
学生へのメッセージ/Message for students	Since this lecture is based on marine natural products chemistry, to often review is required. The newest literature of a related field is read.
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1	face to face： The possibilities of marine organisms for the medicinal sources (Yamada), (Knowledge / skills)
2	face to face： Materials for development of the medicine I Antimicrobial and anticancer drugs in clinical and preclinical trials (Yamada), (Knowledge / skills)
3	face to face： Materials for development of the medicine II Antiplasmodial marine natural products (Yamada), (Knowledge / skills)
4	face to face： Marine natural products for the tool of pharmacological studies (Yamada), (Knowledge / skills)

学期／Semester	2024年度／Academic Year　4クォーター／Fourth Quarter	曜日・校時／Day・Period	金／Fri 2
開講期間／Course duration	2024/11/28～2025/03/31		
必修選択／Required / Elective	選択／elective	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//0.5
時間割コード／Time schedule code	20245503181005	科目番号／Course code	55031810
科目ナンバリングコード／Numbering code	BMMP 52322_785		
授業科目名／Course title	Resources of Natural Medicines／Resources of Natural Medicines for Infectious Diseases		
編集担当教員／Instructor in charge of the course syllabus	真木　俊英／Maki Toshihide		
授業担当教員名（科目責任者）／Instructor in charge of the course	真木　俊英／Maki Toshihide		
授業担当教員名（オムニバス科目等）／Instructor(s)	真木　俊英／Maki Toshihide		
科目分類／Course Category	講義科目（区分D），特別コースの授業科目／NUPGP		
対象年次／Intended year	1, 2	講義形態／Course style	講義／Lecture
教室／Class room	〔薬学〕本館５階リフレッシュルーム／Pharmaceutical School 5th floor refresh room		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	maki@nagasaki-u.ac.jp		
担当教員研究室/Office	Structure Analysis for Chemicals		
担当教員TEL/Tel	095-819-2465		
担当教員オフィスアワー/Office hours	Mon. - Fri. 12:00 - 13:00		
授業の概要及び位置づけ/Course overview	You will learn basic of nuclear magnetic resonance spectrometer and mass spectrometer which are essential instruments for structure analysis for chemicals including infectious diseases.		
授業到達目標/Course goals	The ability to explain basics of NMR and Mass spectrometer. The ability to select rational instruments for structure analysis of target		
知識・技能以外に、この授業を通して身につけて欲しい力（１つ以上３つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	The achievement level of the above-mentioned target is evaluated by following standards: Report (60%) and discussion (40%) in the class .		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Preparation before lecture (1 hour), Review after lecture (1 hour)		
キーワード/Keywords	nuclear magnetic resonance, mass spectrometry, chemistry, structure		
教科書・教材・参考書/Materials	Reference books: High-Resolution NMR Techniques in Organic Chemistry, Understanding mass spectra, etc.		
受講要件（履修条件）/Prerequisites			
アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　　（FAX）095-819-2948		
備考（URL）/Remarks (URL)	These lectures will be held face-to-face.		

学生へのメッセージ/Message for students	LACS may be used for distribution of documents and announcement about this class.
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Face-to-face lecture Basic of nuclear magnetic resonance spectrometer with vector model.
2nd	Face-to-face lecture Advanced techniques of nuclear magnetic resonance spectrometer with vector model.
3rd	Face-to-face lecture Basic of mass spectrometer: ionization methods and fragmentation pattern.
4th	Face-to-face lecture Discussion about practical problems in structural analysis of

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//4.0
時間割コード／Time schedule code	202455082000A0	科目番号／Course code	55082000
科目ナンバリングコード／Numbering code	BMMP 66812_796		
授業科目名／Course title	Exercise Biomedical Sciences：Cell Regulation／Exercise Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	武田　弘資／TAKEDA Kosuke, 谷村　進／Tanimura Susumu, 竹生田　淳／Takoda　Jun		
授業担当教員名（科目責任者）／Instructor in charge of the course	武田　弘資／TAKEDA Kosuke		
授業担当教員名（オムニバス科目等）／Instructor(s)	武田　弘資／TAKEDA Kosuke, 谷村　進／Tanimura Susumu, 竹生田　淳／Takoda　Jun		
科目分類／Course Category	Exercise Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	演習／Seminar
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	takeda-k@nagasaki-u.ac.jp		
担当教員研究室/Office	Cell Regulation		
担当教員TEL/Tel	095-819-2417		
担当教員オフィスアワー/Office hours	At any time by e-mail		
授業の概要及び位置づけ/Course overview	To learn the approaches to elucidate the mechanisms of intracellular signal transduction regulating various cellular functions.		
授業到達目標/Course goals	・To select appropriate research articles from journals and databases (DP-2, 3). ・To understand research articles in English (DP-4). ・To acquire how to present and discuss scientific data (DP-6).		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　■国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over ■B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	The achievement level of the above-mentioned target is evaluated by following standards. Understanding (30%), materials (10%), presentation (30%), discussion (30%)		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Preparation: read and understand appropriate papers and summarize them. (0.5 h). Review: developing deep understanding of the papers and related problems discussed in them (0.5 h).		
キーワード/Keywords	signal transduction, cell signaling, stress response, cancer, metabolism, mitochondria		
教科書・教材・参考書/Materials	Scientific journals		
受講要件（履修条件）/Prerequisites	None		
アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　　（FAX）095-819-2948 （E-MAIL）support@ml.nagasaki-u.ac.jp		

備考（URL）/Remarks (URL)	All classes are held in person.
学生へのメッセージ/Message for students	
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Lecture on how to use databases and collect information
2nd	Select an original article that is related to your research and summarize, report and discuss the results of the article. (1)
3rd	Select an original article that is related to your research and summarize, report and discuss the results of the article. (2)
4th	Select an original article that is related to your research and summarize, report and discuss the results of the article. (3)
5th	Select an original article that is related to your research and summarize, report and discuss the results of the article. (4)
6th	Select an original article that is related to your research and summarize, report and discuss the results of the article. (5)
7th	Select an original article that is related to your research and summarize, report and discuss the results of the article. (6)
8th	Select an original article that is related to your research and summarize, report and discuss the results of the article. (7)
9th	Select an original article that is related to your research and summarize, report and discuss the results of the article. (8)
10th	Select an original article that is related to your research and summarize, report and discuss the results of the article. (9)
11th	Select an original article that is related to your research and summarize, report and discuss the results of the article. (10)
12th	Select an original article that is related to your research and summarize, report and discuss the results of the article. (11)
13th	Select an original article that is related to your research and summarize, report and discuss the results of the article. (12)
14th	Select an original article that is related to your research and summarize, report and discuss the results of the article. (13)
15th	Select an original article that is related to your research and summarize, report and discuss the results of the article. (14)

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//16.0
時間割コード／Time schedule code	202455082010C0	科目番号／Course code	55082010
科目ナンバリングコード／Numbering code	BMMP 66912_796		
授業科目名／Course title	Experiment Biomedical Sciences：Cell Regulation／Experiment Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	武田　弘資／TAKEDA Kosuke, 谷村　進／Tanimura Susumu, 竹生田　淳／Takoda　Jun		
授業担当教員名（科目責任者）／Instructor in charge of the course	武田　弘資／TAKEDA Kosuke		
授業担当教員名（オムニバス科目等）／Instructor(s)	武田　弘資／TAKEDA Kosuke, 谷村　進／Tanimura Susumu, 竹生田　淳／Takoda　Jun		
科目分類／Course Category	Experiment Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	実験／Experiment
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	takeda-k@nagasaki-u.ac.jp		
担当教員研究室/Office	Cell Regulation		
担当教員TEL/Tel	095-819-2417		
担当教員オフィスアワー/Office hours	At any time by e-mail		
授業の概要及び位置づけ/Course overview	To learn the approaches to elucidate the mechanisms of intracellular signal transduction regulating various cellular functions.		
授業到達目標/Course goals	・To plan and perform appropriate experiments to obtain data for publication in scientific journals (DP-1, 2, 3). ・To obtain valid conclusions and discussion from experimental data (DP-3, 5).		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　■協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over ■B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Active participation 80% and achievement 20%		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Preparation: read related research articles and understand own research themes and plans. Review: discuss with teachers and colleagues and consider how to solve problems and to advance research.		
キーワード/Keywords	signal transduction, cell signaling, stress response, cancer, metabolism, mitochondria		
教科書・教材・参考書/Materials			
受講要件（履修条件）/Prerequisites	None		

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948 （E-MAIL）support@ml.nagasaki-u.ac.jp
備考（URL）/Remarks (URL)	All classes are held in person.
学生へのメッセージ/Message for students	
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Select a research subject and make strategies for it.
2nd	Perform experiments and analyze the data from them.
3rd	Summarize the experimental results and discuss them.
4th	Present the results at a scientific meeting.

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//4.0
時間割コード／Time schedule code	202455082000A1	科目番号／Course code	55082000
科目ナンバリングコード／Numbering code	BMMP 66812_796		
授業科目名／Course title	Exercise Biomedical Sciences：Pharmacology and Therapeutic Innovation／Exercise Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	金子　雅幸／Kaneko Masayuki, 塚原　完／Tsukahara Tamotsu		
授業担当教員名（科目責任者）／Instructor in charge of the course	金子　雅幸／Kaneko Masayuki		
授業担当教員名（オムニバス科目等）／Instructor(s)	金子　雅幸／Kaneko Masayuki, 塚原　完／Tsukahara Tamotsu		
科目分類／Course Category	Exercise Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	演習／Seminar
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	1, 2		
担当教員Eメールアドレス/E-mail address	m-kaneko@nagasaki-u.ac.jp (Kaneko) ttamotsu@nagasaki-u.ac.jp (Tsukahara)		
担当教員研究室/Office	Department of Pharmacology and Therapeutic Innovation		
担当教員TEL/Tel	095-819-2421 (Kaneko) 095-819-2473 (Tsukahara)		
担当教員オフィスアワー/Office hours	Accept any question by e-mail		
授業の概要及び位置づけ/Course overview	Students comprehend original and review articles in molecular pharmacology area, and present the contents such as introduction, methods, results and discussion using PowerPoint slides. They discuss about the significance or controversial points in the report as well as authors’ views. Audience including undergraduate, postgraduate and professors make comments and ask questions about the points, which are not clear.		
授業到達目標/Course goals	Students can gain the skills to choose good reports of interest from databases. Students can appropriately explain the report written in English. Students can discuss the significance of the report and related works.		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　□主体性／Autonomy　□協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　■国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	□A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Logical explanation and discussion (100%)		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Difficult to keep up with the class without studying the material in advance and doing the reviews. Preparation and review is very important.		
キーワード/Keywords	None		
教科書・教材・参考書/Materials	Research Journals		
受講要件（履修条件）/Prerequisites	None		

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information (TEL)095-819-2006 (FAX)095-819-2948 (E-
備考（URL）/Remarks (URL)	None
学生へのメッセージ/Message for students	None
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1-15	Comprehend original and review articles in molecular pharmacology area, and present the contents such as introduction, methods, results and discussion using PowerPoint slides.

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//16.0
時間割コード／Time schedule code	202455082010C1	科目番号／Course code	55082010
科目ナンバリングコード／Numbering code	BMMP 66912_796		
授業科目名／Course title	Experiment Biomedical Sciences：Pharmacology and Therapeutic Innovation／Experiment Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	金子　雅幸／Kaneko Masayuki, 塚原　完／Tsukahara Tamotsu		
授業担当教員名（科目責任者）／Instructor in charge of the course	金子　雅幸／Kaneko Masayuki		
授業担当教員名（オムニバス科目等）／Instructor(s)	金子　雅幸／Kaneko Masayuki, 塚原　完／Tsukahara Tamotsu		
科目分類／Course Category	Experiment Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	実験／Experiment
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	1, 2		
担当教員Eメールアドレス/E-mail address	m-kaneko@nagasaki-u.ac.jp (Kaneko) ttamotsu@nagasaki-u.ac.jp (Tsukahara)		
担当教員研究室/Office	Pharmacology and Therapeutic Innovation		
担当教員TEL/Tel	095-819-2421 (Kaneko) 095-819-2473 (Tsukahara)		
担当教員オフィスアワー/Office hours	Accept any question by e-mail		
授業の概要及び位置づけ/Course overview	Students comprehend original and review articles in molecular pharmacology area, and present the contents such as introduction, methods, results and discussion using PowerPoint slides. They discuss about the significance or controversial points in the report as well as authors’ views. Audience including undergraduate, postgraduate and professors make comments and ask questions about the points, which are not clear.		
授業到達目標/Course goals	Students can gain the skills to choose good reports of interest from databases. Students can appropriately explain the report written in English. Students can discuss the significance of the report and related works.		
知識・技能以外に、この授業を通して身につけて欲しい力（１つ以上３つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　□主体性／Autonomy　■協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over ■B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Logical explanation and discussion (100%)		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Difficult to keep up with the class without studying the material in advance and doing the reviews. Preparation and review is very important.		
キーワード/Keywords	None		
教科書・教材・参考書/Materials	Research Journals		
受講要件（履修条件）/Prerequisites	None		

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information (TEL)095-819-2006 (FAX)095-819-2948 (E-
備考（URL）/Remarks (URL)	None
学生へのメッセージ/Message for students	None
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1	Research screening, causes and effects of diseases
2	Research screening, causes and effects of diseases
3	Work with high-tech laboratory equipment
4	Work with high-tech laboratory equipment
5	Work with high-tech laboratory equipment
6	Analyse data and statistics
7	Analyse data and statistics
8	PowerPoint Presentation

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//4.0
時間割コード／Time schedule code	202455082000A2	科目番号／Course code	55082000
科目ナンバリングコード／Numbering code	BMMP 66812_796		
授業科目名／Course title	Exercise Biomedical Sciences：Pharmaceutical Chemistry／Exercise Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	田中　正一／Tanaka Masakazu, 大庭　誠／Oba Makoto, 上田　篤志／Ueda Atsushi		
授業担当教員名（科目責任者）／Instructor in charge of the course	田中　正一／Tanaka Masakazu		
授業担当教員名（オムニバス科目等）／Instructor(s)	田中　正一／Tanaka Masakazu, 大庭　誠／Oba Makoto, 上田　篤志／Ueda Atsushi		
科目分類／Course Category	Exercise Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	演習／Seminar
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	matanaka@nagasaki-u.ac.jp		
担当教員研究室/Office	Pharmaceutical Chemistry		
担当教員TEL/Tel	095-819-2423		
担当教員オフィスアワー/Office hours	Tuesday 16:00-18:00		
授業の概要及び位置づけ/Course overview	To profound the specialized knowledge and follow the frontier of relevant research field through literature reading and presentation at the group meeting.		
授業到達目標/Course goals	To master the skill of literature searching, and to develop the ability to exactly understanding the key points of the charged literature articles and presentation skill.		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over ■B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Reading ability and presentation skill (100%)		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	225 h		
キーワード/Keywords	literature, presentation		
教科書・教材・参考書/Materials	Scientific journals in English		
受講要件（履修条件）/Prerequisites			
アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948 （E-MAIL）support@ml.nagasaki-u.ac.jp		
備考（URL）/Remarks (URL)	Face-to-face class		
学生へのメッセージ/Message for students	Not only understanding the content of journal, but also presentation skill are important.		
授業計画詳細／Course Schedule			

回(日時)／Time(date and time)	授業内容／Contents
1	Introduction on literature searching.
2	Lecture how to search scientific articles.
3	Lecture how to search scientific articles.
4	How to search synthesis of target molecules.
5	How to search synthesis of target molecules.
6-30	Present two original research literature papers relating to the research topic of him/herself and discuss.

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//16.0
時間割コード／Time schedule code	202455082010C2	科目番号／Course code	55082010
科目ナンバリングコード／Numbering code	BMMP 66912_796		
授業科目名／Course title	Experiment Biomedical Sciences：Pharmaceutical Chemistry／Experiment Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	田中　正一／Tanaka Masakazu, 上田　篤志／Ueda Atsushi		
授業担当教員名（科目責任者）／Instructor in charge of the course	田中　正一／Tanaka Masakazu		
授業担当教員名（オムニバス科目等）／Instructor(s)	田中　正一／Tanaka Masakazu, 上田　篤志／Ueda Atsushi		
科目分類／Course Category	Experiment Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	実験／Experiment
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	matanaka@nagasaki-u.ac.jp		
担当教員研究室/Office	Pharmaceutical Chemistry		
担当教員TEL/Tel	095-819-2423		
担当教員オフィスアワー/Office hours	Tuesday 16:00-18:00		
授業の概要及び位置づけ/Course overview	To learn the fundamental experimental manipulations and techniques.		
授業到達目標/Course goals	Can carry out the routine experiments independently, and can summarize and present the experimental results.		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Do you understand the purpose of the research properly and are sufficiently squeezed the experiment plan, Are synthesis, separation, and instrument measurement means appropriate, Is the data analysis correct? Are there any considerations for improvement of experiments and research, Can you summarize research results properly The above is the evaluation criteria.		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	225 h		
キーワード/Keywords			
教科書・教材・参考書/Materials	Scientific journals		
受講要件（履修条件）/Prerequisites			

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948 （E-MAIL）support@ml.nagasaki-u.ac.jp
備考（URL）/Remarks (URL)	Face-to-face class
学生へのメッセージ/Message for students	Discussions on experimental results are important.
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
	Learning about the structure and function of bioorganic molecules, and discussion with the advisor to get the research plan settled.
	Learning about the structure and function of bioorganic molecules, and discussion with the advisor to get the research plan settled.
	Literature searching for the reported work that may be related to the research subject or that may be referred in carrying out the research plan.
	Literature searching for the reported work that may be related to the research subject or that may be referred in carrying out the research plan.
	A possible revision of the research plan is made if judged necessary on the basis of the literature searching.
	A possible revision of the research plan is made if judged necessary on the basis of the literature searching.
	Search for references relating synthesis of the target molecule.
	Search for references relating synthesis of the target molecule.
	Creation of the synthetic plan for the target molecule.
	Creation of the synthetic plan for the target molecule.
	Isolation and structural characterization of the synthetic intermediates.
	Isolation and structural characterization of the synthetic intermediates.
	Separation and structural determination of the functional molecule.
	Separation and structural determination of the functional molecule.
	Instrumental experiments on the properties of the functional target molecule.
	Instrumental experiments on the properties of the functional target molecule.
	Summarizing the research results and presenting at the group meeting.
	Summarizing the research results and presenting at the group meeting.
	Preparation of manuscripts for publication.
	Preparation of manuscripts for publication.

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//4.0
時間割コード／Time schedule code	202455082000A3	科目番号／Course code	55082000
科目ナンバリングコード／Numbering code	BMMP 66812_796		
授業科目名／Course title	Exercise Biomedical Sciences：Pharmaceutical Organic Chemistry／Exercise Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	石原　淳／Ishihara Jun, 福田　隼／Hayato Fukuda, 小嶺　敬太／Komine Keita		
授業担当教員名（科目責任者）／Instructor in charge of the course	石原　淳／Ishihara Jun		
授業担当教員名（オムニバス科目等）／Instructor(s)	石原　淳／Ishihara Jun, 福田　隼／Hayato Fukuda, 小嶺　敬太／Komine Keita		
科目分類／Course Category	Exercise Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	演習／Seminar
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	jishi@nagasaki-u.ac.jp (Ishihara), hfukuda@nagasaki-u.ac.jp (Fukuda)		
担当教員研究室/Office	Pharmaceutical Organic Chemistry		
担当教員TEL/Tel	819-2426 (Ishihara), 819-2427 (Fukuda)		
担当教員オフィスアワー/Office hours	Mon-Fri 13:00-18:00		
授業の概要及び位置づけ/Course overview	To attain the ability to read the journals and books in the field of pharmaceutical organic chemistry and natural product synthesis, acquire reading comprehension skills, and acquire the latest information on research. In addition, to develop the ability to make presentations based on an accurate understanding of the content of the journal papers. In this way, students will learn about the expertise in the field of pharmaceutical organic chemistry, the historical position of the research field, unsolved		
授業到達目標/Course goals	(1) Be able to get the proper journals and books from databases. (DP-2,DP-3) (2) Be able to understand the contents of the journals and books. (DP-4) (3) Be able to discuss the chemistry described in the journals and books. (DP-6)		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	□A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over ■B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	The achievement level of the above-mentioned target is evaluated by following standards. Understanding (30%), materials (10%), presentation (30%), discussion (30%)		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Prepare: reading the proper papers and summarizing the works in the paper. (0.5 h) Review: developing deep understanding and the chemical knowledge of the works. (0.5 h)		
キーワード/Keywords	chemical synthesis, natural products, pharmaceutical sciences		
教科書・教材・参考書/Materials	Journals (JACS, JOC, OL, TL, Angew.Chem.Int.Ed., Chem.Commun, etc)		
受講要件（履修条件）/Prerequisites			

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　　（FAX）095-819-2948
備考（URL）/Remarks (URL)	
学生へのメッセージ/Message for students	
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Learn how to get proper journals and books using databases.
2nd	Learn how to utilize the information obtained for carrying out the synthetic studies.
3rd	Present the subjects on synthetic chemistry from the up-to-date journals and books and discuss the topics in the class. Contents above (1st-3rd) are repeated.

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0, 日／Sun 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//16.0
時間割コード／Time schedule code	202455082010C3	科目番号／Course code	55082010
科目ナンバリングコード／Numbering code	BMMP 66912_796		
授業科目名／Course title	Experiment Biomedical Sciences：Pharmaceutical Organic Chemistry／Experiment Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	石原　淳／Ishihara Jun, 福田　隼／Hayato Fukuda, 小嶺　敬太／Komine Keita		
授業担当教員名（科目責任者）／Instructor in charge of the course	石原　淳／Ishihara Jun		
授業担当教員名（オムニバス科目等）／Instructor(s)	石原　淳／Ishihara Jun, 福田　隼／Hayato Fukuda, 小嶺　敬太／Komine Keita		
科目分類／Course Category	Experiment Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	実験／Experiment
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	jishi@nagasaki-u.ac.jp, hfukuda@nagasaki-u.ac.jp		
担当教員研究室/Office	Pharmaceutical Organic Chemistry		
担当教員TEL/Tel	819-2426 (Ishihara), 829-2427 (Fukuda)		
担当教員オフィスアワー/Office hours	Mon-Fri 13:00-18:00		
授業の概要及び位置づけ/Course overview	To attain the ability for the pharmaceutical organic chemistry, in particular the synthetic chemistry. In addition, to develop the ability to carry out research independently through experiments and journal paper research.		
授業到達目標/Course goals	(1) Be able to make a reasonable plan towards the attainment target (DP-1,DP-2, DP-3) (2) Be able to select the appropriate methods and analyses. (DP-1,DP-2, DP-3) (3) Be able to lead the precise results and substantive discussion. (DP-3,DP-5)		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　■協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	The achievement level of the above-mentioned target is evaluated by following standards. enthusiastic attitude (30%), presentation (20%), and thesis (50%)		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Prepare: searching the past chemical works in the related field Review: developing the methodologies to solve the problems of the works		
キーワード/Keywords	organic chemistry, organic synthesis, natural product		
教科書・教材・参考書/Materials	Journals (JACS, JOC, OL, TL, Angew.Chem.Int.Ed., Chem.Commun, etc)		
受講要件（履修条件）/Prerequisites			
アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948		

備考（URL）/Remarks (URL)	
学生へのメッセージ/Message for students	
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Collect the information concerning the target molecule by searching the databases and reading journals, and then make synthetic plans.
2nd	Determine one synthetic route by the evaluation of the above-mentioned synthetic plans.
3rd	Construct the required key intermediates.
4th	Present the progress report in the group seminar and discuss the results.
5th	Combine the intermediates prepared together to get the advanced intermediates.
6th	Achieve the synthesis of the target molecule and confirm the structure by spectroscopic analyses.
7th	Present the final report in the group seminar and discuss the results.
8th	Prepare a manuscript of the synthetic work for publication.
9th	Prepare a thesis on the synthetic work.

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//4.0
時間割コード／Time schedule code	202455082000A4	科目番号／Course code	55082000
科目ナンバリングコード／Numbering code	BMMP 66812_796		
授業科目名／Course title	Exercise Biomedical Sciences：Chemistry for Pharmaceuticals／Exercise Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	尾野村　治／Osamu Onomura, 栗山　正巳／Kuriyama Masami, 山本　耕介／Yamamoto Kosuke		
授業担当教員名（科目責任者）／Instructor in charge of the course	尾野村　治／Osamu Onomura		
授業担当教員名（オムニバス科目等）／Instructor(s)	尾野村　治／Osamu Onomura, 栗山　正巳／Kuriyama Masami, 山本　耕介／Yamamoto Kosuke		
科目分類／Course Category	Exercise Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	演習／Seminar
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	1st, 2nd		
担当教員Eメールアドレス/E-mail address	onomura@nagasaki-u.ac.jp		
担当教員研究室/Office	Synthetic Chemistry for Pharmaceuticals		
担当教員TEL/Tel	095-819-2429		
担当教員オフィスアワー/Office hours	Mon. - Fri. 10:30 - 18:00		
授業の概要及び位置づけ/Course overview	A major object is to stimulate you by learning what subjects are now current important topics in the field of synthetic organic chemistry directed toward medicinal chemistry through identifying some important literatures in a variety of related academic articles followed by brief description of the contents and discussions.		
授業到達目標/Course goals	You can extract useful research articles by data bases and get necessary original papers (DP-1,2). Furthermore, you can understand the contents of the literatures (DP-2,4,6).		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills ■D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	The achievement level of the above-mentioned target is evaluated by Understanding of research articles (100%).		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Prepare papers to be cited in advance for your dissertation and read the contents carefully to confirm the validity of the citation. Get terms and usage commonly used in scientific papers. It is necessary to become familiar with the operation of statistical analysis and chart creation software. * When collecting information on the Internet, use a reliable site (preferably a site of a public agency). (30 min) It summarizes the points that were difficult to respond to comments pointed out by the dissertation reviewers and the ideas that came up when writing the paper, and prepares them so that you can use for your future research. (30 min)		
キーワード/Keywords	Search for academic literatures, Summarization of literatures, Presentation		
教科書・教材・参考書/Materials	Academic journals (JACS, JOC, OL, Tetrahedron Letters, Angew. Chem. Int. Ed., Chem. Commun. Etc.)		
受講要件（履修条件）/Prerequisites	None		

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948 （E-MAIL）support@ml.nagasaki-u.ac.jp
備考（URL）/Remarks (URL)	Face to Face
学生へのメッセージ/Message for students	In advance, read carefully more than three original papers.
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1	Lecture on search skills of data bases (Scifinder, Beilstein).(Onomura &
2	Lecture about methods to get original articles.(O & K&Y)
3	Introducing one original literature related to your research, and discussion of the content (1) (O & K&Y)
4	Introducing one original literature related to your research, and discussion of the content (2) (O & K&Y)
5	Introducing one original literature related to your research, and discussion of the content (3) (O & K&Y)
6	Introducing one original literature related to your research, and discussion of the content (4) (O & K&Y)
7	Introducing one original literature related to your research, and discussion of the content (5) (O & K&Y)
8	Introducing one original literature related to your research, and discussion of the content (6) ((O & K&Y)
9	Introducing one original literature related to your research, and discussion of the content (7) (O & K&Y)
10	Introducing one original literature related to your research, and discussion of the content (8) (O & K&Y)
11	Introducing one original literature related to your research, and discussion of the content (9) (O & K&Y)
12	Introducing one original literature related to your research, and discussion of the content (10) (O & K&Y)
13	Introducing one original literature related to your research, and discussion of the content (11) (O & K&Y)
14	Introducing one original literature related to your research, and discussion of the content (12) (O & K&Y)
15	Introducing one original literature related to your research, and discussion of the content (13) (O & K&Y)

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//16.0
時間割コード／Time schedule code	202455082010C4	科目番号／Course code	55082010
科目ナンバリングコード／Numbering code	BMMP 66912_796		
授業科目名／Course title	Experiment Biomedical Sciences：Chemistry for Pharmaceuticals／Experiment Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	尾野村　治／Osamu Onomura, 栗山　正巳／Kuriyama Masami, 山本　耕介／Yamamoto Kosuke		
授業担当教員名（科目責任者）／Instructor in charge of the course	尾野村　治／Osamu Onomura		
授業担当教員名（オムニバス科目等）／Instructor(s)	尾野村　治／Osamu Onomura, 栗山　正巳／Kuriyama Masami, 山本　耕介／Yamamoto Kosuke		
科目分類／Course Category	Experiment Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	実験／Experiment
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	1st, 2nd		
担当教員Eメールアドレス/E-mail address	onomura@nagasaki-u.ac.jp		
担当教員研究室/Office	Synthetic Chemistry for Pharmaceuticals		
担当教員TEL/Tel	095-819-2429		
担当教員オフィスアワー/Office hours	Mon. - Fri. 10:30 - 18:00		
授業の概要及び位置づけ/Course overview	You learn how to do experiment to get new and fruitful results in synthetic organic chemistry directed toward medicinal chemistry.		
授業到達目標/Course goals	Planning rational synthetic routes to target molecules (DP-1,2). The ability to carry out basic reactions necessary for preparation of complicated molecules (DP-3). The skills to isolate desired products from reaction mixtures (DP-5). The ability to prepare manuscripts to control(DP-4,6).		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills ■D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	The achievement level of the above-mentioned target is evaluated by Completion of research articles (100%).		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Read scientific papers and protocols, build working hypothesis and create experimental protocols. In addition, it is necessary to prepare reagents in advance, confirm the operation of the equipment, prepare an experimental protocol and a data analysis file. * When collecting information on the Internet, use a reliable site (preferably a site of a public agency). Data analysis, evaluation and consideration of the obtained results. Review the points pointed out in discussions with the instructors, and prepare them so that you can use for future research. For principles that you could not well understand and techniques that require practice, learn again to ensure understanding, find your time and repeat practice		
キーワード/Keywords	Synthetic methods, Analysis of reaction mechanism, Comparison of experimental results		

教科書・教材・参考書/Materials	Academic journals （JACS, JOC, OL, Tetrahedron Letters, Angew. Chem. Int. Ed., Chem. Commun. etc.）, Data bases (Scifinder, Beilstein)
受講要件（履修条件）/Prerequisites	None
アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948 （E-MAIL）support@ml.nagasaki-u.ac.jp
備考（URL）/Remarks (URL)	Face to Face
学生へのメッセージ/Message for students	In advance, master basic knowledge of organic chemistry.
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1	Search data bases to extract academic articles, and Read the articles to get information for preparation of target molecules.(O & K&Y)
2	Design new synthetic routes and plan synthetic experiment. (O & K&Y)
3	Search and read academic articles related to the new routes. (O & K&Y)
4	Analysis of obtained information and determination of reasonable 3 synthetic routes. (O &
5	Experiment of the 1st synthetic route. (O & K&Y)
6	Experiment of the 2nd synthetic route. (O & K&Y)
7	Experiment of the 3rd synthetic route. (O & K&Y)
8	Comparison of experimental results by methods 1-3 (O & K&Y)
9	Presentation of research results to select the best method. (O & K&Y)
10	Generality of selected synthetic method. (O & K&Y)
11	Measurement of physical data. (O & K&Y)
12	Experiments for analysis of reaction mechanism. (O & K&Y)
13	Summarization of research results for presentation in a symposium. (O & K&Y)
14	Presentation of research results in a symposium. (O & K&Y)
15	Preparation of a manuscript to contributable to a journal. (O & K&Y)

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//4.0
時間割コード／Time schedule code	202455082000A5	科目番号／Course code	55082000
科目ナンバリングコード／Numbering code	BMMP 66812_796		
授業科目名／Course title	Exercise Biomedical Sciences：Genome-based Drug Discovery／Exercise Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	岩田　修永／Iwata Nobuhisa, 城谷　圭朗／Shirotani Keiro		
授業担当教員名（科目責任者）／Instructor in charge of the course	岩田　修永／Iwata Nobuhisa		
授業担当教員名（オムニバス科目等）／Instructor(s)	岩田　修永／Iwata Nobuhisa, 城谷　圭朗／Shirotani Keiro		
科目分類／Course Category	Exercise Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	演習／Seminar
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	M1, M2		
担当教員Eメールアドレス/E-mail address	iwata-n@nagasaki-u.ac.jp, keiroshiro@nagasaki-u.ac.jp		
担当教員研究室/Office	Faculty of Pharmaceutical Sciences, 2nd floor, Dept. of Genome-based Drug Discovery		
担当教員TEL/Tel	095-819-2435 (Iwata), 095-819-2436 (Shirotani)		
担当教員オフィスアワー/Office hours	Mon-Fri. 13:00-17:00 (A prior booking by e-mail is essential.)		
授業の概要及び位置づけ/Course overview	Training search, selection and evaluation of information, and enhancing own problem-solving abilities		
授業到達目標/Course goals	At the end of this class, the students should be able to: Select appropriate information necessary for own research theme from overflowing information.(DP2, DP3) Find out fundamental problem in own research field, and discuss it.(DP4) Find appropriate avenues to resolve. (DP3, DP5) Present the results and discussion appropriately and exactly (DP6)		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over ■B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Active participation 80%, and achievement 20%		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Preparation: It is necessary to get a better understanding by reading references and related review articles in the paper you selected. (1h) Review: Re-examine something pointed out by lecturers or raised by discussion, and make sure your understanding. (1h)		
キーワード/Keywords	Alzheimer's disease, pathogenesis, enzyme, recombinant DNA technology, animal model, drug discovery, development of early diagnostic method		
教科書・教材・参考書/Materials	Journals (J Biol Chem, J Neurosci, Neuron, Nature & its sister journals, Science, Cell & its sister journals, etc.), Alzheimer Forum (http://www.alzforum.org/)		
受講要件（履修条件）/Prerequisites	None		

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948
備考（URL）/Remarks (URL)	Face-to-Face class When a lecture is cancelled by the school-wide action due to unforeseen circumstances, a supplementary lecture will be provided on next Saturday.
学生へのメッセージ/Message for students	professional training

授業計画詳細／Course Schedule

回(日時)／Time(date and time)	授業内容／Contents
1	Search appropriate information necessary for own research theme using PubMed and so on.
2	Select appropriate information from overflowing ones.
3	Peruse papers published in scientific journals.
4	Find out fundamental problem in own research field, and discuss it with instructors.
5	Find appropriate avenues to resolve the facing problem.
6	Search appropriate information necessary for own research theme using PubMed and so on.
7	Select appropriate information from overflowing ones.
8	Peruse papers published in scientific journals.
9	Find out fundamental problem in own research field, and discuss it with instructors.
10	Find appropriate avenues to resolve the facing problem.
11	Search appropriate information necessary for own research theme using PubMed and so on.
12	Select appropriate information from overflowing ones.
13	Peruse papers published in scientific journals.
14	Find out fundamental problem in own research field, and discuss it with instructors.
15	Find appropriate avenues to resolve the facing problem.
16	Search appropriate information necessary for own research theme using PubMed and so on.
17	Select appropriate information from overflowing ones.
18	Peruse papers published in scientific journals.
19	Find out fundamental problem in own research field, and discuss it with instructors.
20	Find appropriate avenues to resolve the facing problem.
21	Search appropriate information necessary for own research theme using PubMed and so on.
22	Select appropriate information from overflowing ones.
23	Peruse papers published in scientific journals.
24	Find out fundamental problem in own research field, and discuss it with instructors.
25	Find appropriate avenues to resolve the facing problem.
26	Search appropriate information necessary for own research theme using PubMed and so on.
27	Select appropriate information from overflowing ones.
28	Peruse papers published in scientific journals.
29	Find out fundamental problem in own research field, and discuss it with instructors.
30	Find appropriate avenues to resolve the facing problem.

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//16.0
時間割コード／Time schedule code	202455082010C5	科目番号／Course code	55082010
科目ナンバリングコード／Numbering code	BMMP 66912_796		
授業科目名／Course title	Experiment Biomedical Sciences：Genome-based Drug Discovery／Experiment Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	岩田　修永／Iwata Nobuhisa, 城谷　圭朗／Shirotani Keiro		
授業担当教員名（科目責任者）／Instructor in charge of the course	岩田　修永／Iwata Nobuhisa		
授業担当教員名（オムニバス科目等）／Instructor(s)	岩田　修永／Iwata Nobuhisa, 城谷　圭朗／Shirotani Keiro		
科目分類／Course Category	Experiment Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	実験／Experiment
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	M1, M2		
担当教員Eメールアドレス/E-mail address	iwata-n@nagasaki-u.ac.jp, keiroshiro@nagasaki-u.ac.jp		
担当教員研究室/Office	Faculty of Pharmaceutical Sciences, 2nd floor, Dept. of Genome-based Drug Discovery		
担当教員TEL/Tel	095-819-2435 (Iwata), 095-819-2436 (Shirotani)		
担当教員オフィスアワー/Office hours	Mon-Fri. 13:00-17:00 (A prior booking by e-mail is essential.)		
授業の概要及び位置づけ/Course overview	Designing an experimental plan to solve the problems, training experimental techniques, and evaluating obtained results. (DP1-3, 5)		
授業到達目標/Course goals	At the end of this class, the students should be able to: Fulfill the experiments using appropriate methods and trained techniques according to the experimental plan, and make a paper to publish in scientific journals.		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over ■B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills ■D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Active participation 80%, and achievement 20%		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Preparation: It is necessary to read papers, textbooks and operating manuals for instruments and construct your working hypothesis and prepare detailed experimental protocol. Review: Evaluate and discuss the data you obtained. Make a thorough review of the points		
キーワード/Keywords	Alzheimer's disease, pathogenesis, enzyme, recombinant DNA technology, animal model, drug discovery, development of early diagnostic method		
教科書・教材・参考書/Materials	Journals (JBC, J Neurosci, Neuron, Nature & its sister journals, Science, Cell & its sister journals, etc.) and Alzheimer Forum (http://www.alzforum.org/).		
受講要件（履修条件）/Prerequisites	None		

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948
備考（URL）/Remarks (URL)	When a lecture is cancelled by the school-wide action due to unforeseen circumstances, a supplementary lecture will be provided on next Saturday.
学生へのメッセージ/Message for students	Professional training
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1-20	molecular biological experiments
21-40	cell biological experiments
41-60	biochemical & enzymological experiments
61-80	histochemical experiments
81-108	animal experiments
108-128	statistics and data analysis

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//4.0
時間割コード／Time schedule code	202455082000A8	科目番号／Course code	55082000
科目ナンバリングコード／Numbering code	BMMP 66812_796		
授業科目名／Course title	Exercise Biomedical Sciences：Department of Chemical Biology and Medicinal Chemistry／Exercise Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	薬師寺　文華／yakushiji fumika, 山田　耕史／Yamada Koji, 松尾　洋介／Matsuo Yosuke, 齋藤　義紀／Saito Yoshinori		
授業担当教員名（科目責任者）／Instructor in charge of the course	薬師寺　文華／yakushiji fumika		
授業担当教員名（オムニバス科目等）／Instructor(s)	薬師寺　文華／yakushiji fumika, 山田　耕史／Yamada Koji, 松尾　洋介／Matsuo Yosuke, 齋藤　義紀／Saito Yoshinori		
科目分類／Course Category	Exercise Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	演習／Seminar
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	NUPGP		
担当教員Eメールアドレス/E-mail address	Yakushiji, Fumika: ****@nagasaki-u.ac.jp Saito, Yoshinori: saiyoshi@nagasaki-u.ac.jp Matsuo, Yosuke: y-matsuo@nagasaki-u.ac.jp Yamada, Koji: kyamada@nagasaki-u.ac.jp		
担当教員研究室/Office	Chemical Biology and Medicinal Chemistry		
担当教員TEL/Tel	095-819-2432 (FY), 2433 (YS), 2434 (YM), 2462 (KY)		
担当教員オフィスアワー/Office hours	Mon-Fri: 10:30 - 16:00 Make appointment by e-mail		
授業の概要及び位置づけ/Course overview	The aim is to understand biosynthesis, classification, separation, structure determination, functions and biological activities, and practical application of natural		
授業到達目標/Course goals	Students acquire the knowledge of the classification, biosynthesis, and function of natural products. (DP1) Students acquire the strategy and various techniques of separation and structure determination of natural products (DP1)		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　□主体性／Autonomy　□協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills ■D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Achievement of class goal is evaluated by excercise (40%), report and presentation (40%), andattendance (20%)		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Preparation: find examples of information concerning each theme in SciFinder (2 h). Review: study examples of separation, structure determination and evaluation of activities in research papers (3 h).		
キーワード/Keywords	separation of natural products, secondary metabolites, polyphenols, spectroscopic methods		
教科書・教材・参考書/Materials	reference book: Dewick, Medicinal Natural Product Chemistry		
受講要件（履修条件）/Prerequisites			

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948 （E-MAIL）support@ml.nagasaki-u.ac.jp
備考（URL）/Remarks (URL)	http://www.ph.nagasaki-u.ac.jp/lab/natpro/index-j.html
学生へのメッセージ/Message for students	
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Biosynthesis of natural products
2nd	Separation and structure determination
3rd	Structures and functions of polyphenols
4th	Reactions and synthesis of polyphenols
5th	Medicines derived from natural products
6th	Tea chemistry
7th	Structure and reactions of flavonoids
8th	Structure and functions of various pigments

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//16.0
時間割コード／Time schedule code	202455082010C8	科目番号／Course code	55082010
科目ナンバリングコード／Numbering code	BMMP 66912_796		
授業科目名／Course title	Experiment Biomedical Sciences：Department of Chemical Biology and Medicinal Chemistry／Experiment Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	薬師寺　文華／yakushiji fumika, 田中　隆／Tanaka Takashi, 山田　耕史／Yamada Koji, 松尾　洋介／Matsuo Yosuke, 齋藤　義紀／Saito Yoshinori		
授業担当教員名（科目責任者）／Instructor in charge of the course	薬師寺　文華／yakushiji fumika		
授業担当教員名（オムニバス科目等）／Instructor(s)	薬師寺　文華／yakushiji fumika, 田中　隆／Tanaka Takashi, 山田　耕史／Yamada Koji, 松尾　洋介／Matsuo Yosuke, 齋藤　義紀／Saito Yoshinori		
科目分類／Course Category	Experiment Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	実験／Experiment
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	NUPGP		
担当教員Eメールアドレス/E-mail address	Yakushiji, Fumika: ****@nagasaki-u.ac.jp Saito, Yoshinori: saiyoshi@nagasaki-u.ac.jp Matsuo, Yosuke: y-matsuo@nagasaki-u.ac.jp Yamada, Koji: kyamada@nagasaki-u.ac.jp		
担当教員研究室/Office	Chemical Biology and Medicinal Chemistry		
担当教員TEL/Tel	095-819-2432 (FY), 2433 (YS), 2434 (YM), 2462 (KY)		
担当教員オフィスアワー/Office hours	Mon-Fri; 10:30 - 16:00 Please make appointment by e-mail		
授業の概要及び位置づけ/Course overview	The aim is to understand biosynthesis, clssification,separation, structure determination, functions and biological activities, and practical application of natural products.		
授業到達目標/Course goals	To explain the methods and spectroscopic structure determination of Natural Products.(DP1)		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　□主体性／Autonomy　□協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills ■D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Achievement of class goal is evaluated by experimental skil (20%), spectroscopic technique (20%), presentation (20%), report(20%), attendance(20%)		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Preparation: find examples of information concerning each theme in SciFinder. Review: study examples of separation, structure determination and evaluation of activities in		
キーワード/Keywords	separation of natural products, secondary metabolites, polyphenols, spectroscopic methods		
教科書・教材・参考書/Materials	reference book: Dewick, Medicinal Natural Product Chemistry		
受講要件（履修条件）/Prerequisites			

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948 （E-MAIL）support@ml.nagasaki-u.ac.jp
備考（URL）/Remarks (URL)	http://www.ph.nagasaki-u.ac.jp/lab/natpro/index-j.html
学生へのメッセージ/Message for students	
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Biosynthesis of natural products
2nd	Separation and structure determination
3rd	Structures and functions of polyphenols
4th	Reactions and synthesis of polyphenols
5th	Medicines derived from natural products
6th	Tea chemistry
7th	Structure and reactions of flavonoids
8th	Structure and functions of various pigments

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//4.0
時間割コード／Time schedule code	202455082000A9	科目番号／Course code	55082000
科目ナンバリングコード／Numbering code	BMMP 66812_796		
授業科目名／Course title	Exercise Biomedical Sciences：Structure Analysis for Chemicals／Exercise Biomedical		
編集担当教員／Instructor in charge of the course syllabus	真木　俊英／Maki Toshihide		
授業担当教員名（科目責任者）／Instructor in charge of the course	真木　俊英／Maki Toshihide		
授業担当教員名（オムニバス科目等）／Instructor(s)	真木　俊英／Maki Toshihide		
科目分類／Course Category	Exercise Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	演習／Seminar
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	1st, 2nd, 3rd		
担当教員Eメールアドレス/E-mail address	maki@nagasaki-u.ac.jp		
担当教員研究室/Office	Structure Analysis for Chemicals		
担当教員TEL/Tel	095-819-2465		
担当教員オフィスアワー/Office hours	Mon. - Fri. 12:00 - 13:00		
授業の概要及び位置づけ/Course overview	Searching, understanding, and analysis of current publications about organic chemistry and pharmaceutical sciences. Analysis of research reports based on their background, experiments, and results. Discussion about contents of research and future subjects.		
授業到達目標/Course goals	Capability to search the target paper Skill for efficient use technology of a database Capability of understanding of specialized contents (DP-4・6)		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	The achievement level of the above-mentioned target is evaluated by following standards: Skill for search 20%, selection of paper 20%, presentation 20%, and the discussion 40% .		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Read and understand the contents of research papers in English for discussion(0.5 h). Based on discussions with supervisor, consider the relevance to their own research theme. (0.5h)		
キーワード/Keywords	database, search, summarization, presentation, discussion		
教科書・教材・参考書/Materials	Journals for organic chemistry (JACS, JOC, Org.Letter, Tetrahedron etc.)		
受講要件（履修条件）/Prerequisites	None		

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948
備考（URL）/Remarks (URL)	Face-to-face lecture
学生へのメッセージ/Message for students	
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1回目	Face-to-face lecture Carrying out planned research and discussing about the obtained
2回目	Face-to-face lecture Carrying out planned research and discussing about the obtained
3回目	Face-to-face lecture Carrying out planned research and discussing about the obtained
4回目	Face-to-face lecture Carrying out planned research and discussing about the obtained
5回目	Face-to-face lecture Carrying out planned research and discussing about the obtained
6回目	Face-to-face lecture Carrying out planned research and discussing about the obtained
7回目	Face-to-face lecture Carrying out planned research and discussing about the obtained
8回目	Face-to-face lecture Carrying out planned research and discussing about the obtained
9回目	Face-to-face lecture Carrying out planned research and discussing about the obtained
10回目	Face-to-face lecture Carrying out planned research and discussing about the obtained
11回目	Face-to-face lecture Carrying out planned research and discussing about the obtained
12回目	Face-to-face lecture Carrying out planned research and discussing about the obtained
13回目	Face-to-face lecture Carrying out planned research and discussing about the obtained
14回目	Face-to-face lecture Carrying out planned research and discussing about the obtained
15回目	Face-to-face lecture Carrying out planned research and discussing about the obtained

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//16.0
時間割コード／Time schedule code	202455082010C9	科目番号／Course code	55082010
科目ナンバリングコード／Numbering code	BMMP 66912_796		
授業科目名／Course title	Experiment Biomedical Sciences：Structure Analysis for Chemicals／Experiment Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	真木　俊英／Maki Toshihide		
授業担当教員名（科目責任者）／Instructor in charge of the course	真木　俊英／Maki Toshihide		
授業担当教員名（オムニバス科目等）／Instructor(s)	真木　俊英／Maki Toshihide		
科目分類／Course Category	Experiment Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	実験／Experiment
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	1st, 2nd, 3rd		
担当教員Eメールアドレス/E-mail address	maki@nagasaki-u.ac.jp		
担当教員研究室/Office	Structure Analysis for Chemicals		
担当教員TEL/Tel	095-819-2465		
担当教員オフィスアワー/Office hours	Mon. - Fri. 12:00 - 13:00		
授業の概要及び位置づけ/Course overview	Searching, understanding, and analysis of current publications about organic chemistry and pharmaceutical sciences. Analysis of research reports based on their background, experiments, and results. Discussion about contents of research and future subjects.		
授業到達目標/Course goals	Capability to search the target paper Skill for efficient use technology of a database Capability of understanding of specialized contents (DP-4・6) The ability to carry out basic reactions necessary for preparation of complicated molecules. The skills to isolate desired products from reaction mixtures. The ability to prepare manuscripts to control.		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills ■D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	The achievement level of the above-mentioned target is evaluated by following standards: Skill for search 20%, selection of paper 20%, presentation 20%, and the discussion 40%		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Read and understand the contents of research papers in English for discussion(0.5 h). Based on discussions with supervisor, consider the relevance to their own research theme. (0.5h)		
キーワード/Keywords	database, search, summarization, presentation, discussion		
教科書・教材・参考書/Materials	Journals for organic chemistry (JACS, JOC, Org.Letter, Tetrahedron etc.)		
受講要件（履修条件）/Prerequisites	None		

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948
備考（URL）/Remarks (URL)	Face-to-face lecture
学生へのメッセージ/Message for students	
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Face-to-face lecture Discussion about theme of research
2nd	Face-to-face lecture Carrying out experiments; synthesis and structure analysis and characterization of compounds
3rd	Face-to-face lecture Analyses of the obtained results; function of molecules and understanding of reactivity
4th	Face-to-face lecture Discussion on structure- activity relationship
5th	Face-to-face lecture Evaluation of compounds of interest
6th	Face-to-face lecture elucidation for structure- activity relationship, and design new
7th	Face-to-face lecture Planning synthetic route based on reported methods.
8th	Face-to-face lecture Carrying out organic reactions under various condition to get high
9th	Face-to-face lecture Purification for characterization by NMR, Mass spectrometry, and other spectroscopic analyses.
10th	Face-to-face lecture Establish hypothesis to understand structure- activity relationships observed.
11th	Face-to-face lecture Searching previous reports to support your hypothesis. And modified the hypothesis if necessary.
12th	Face-to-face lecture Collection of supporting data for the hypothesis.
13th	Face-to-face lecture Collection of experimental evidence to the hypothesis.
14th	Face-to-face lecture Evaluation of all data obtained so far and finding scopes and
15th	Face-to-face lecture Summarizing the results and preparation of reports

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//4.0
時間割コード／Time schedule code	202455082000B0	科目番号／Course code	55082000
科目ナンバリングコード／Numbering code	BMMP 66812_796		
授業科目名／Course title	Exercise Biomedical Sciences：Chemistry of Biofunctional Molecules／Exercise Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	山吉　麻子／Yamayoshi Asako, 山本　剛史／Yamamoto Tsuyoshi, 三瓶　悠／Mikame Yu		
授業担当教員名（科目責任者）／Instructor in charge of the course	山吉　麻子／Yamayoshi Asako		
授業担当教員名（オムニバス科目等）／Instructor(s)	山吉　麻子／Yamayoshi Asako, 山本　剛史／Yamamoto Tsuyoshi, 三瓶　悠／Mikame Yu		
科目分類／Course Category	Exercise Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	演習／Seminar
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	asakoy@nagasaki-u.ac.jp/ tsuyoshi.yamamoto@nagasaki-u.ac.jp/ yu_mikame@nagasaki-u.ac.jp		
担当教員研究室/Office	Chemistry of Biofunctional molecules, 4th floor		
担当教員TEL/Tel	095-819-2438 (Yamayoshi)/095-819-2439 (Yamamoto)/095-819-2439 (Mikame)		
担当教員オフィスアワー/Office hours	AM 10:30-PM 18:00		
授業の概要及び位置づけ/Course overview	1. This class will be provided in English. 2. Under the guidance of a faculty member, you may have a chance to visit overseas research institutes to learn experimental techniques, collect data, and exchange information.		
授業到達目標/Course goals	・To learn how to demonstrate about contents of scientific papers, and individual experimental data(DP2) ・You will be evaluated, based on understanding of principles, experimental attitude, and proficiency in experimental techniques. (DP1~5)		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　■国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over ■B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Presentation ability(30 points), Discussion ability(30 points), Aggressiveness(40 points).		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Preparation: It is necessary to get a better understanding by reading references and related review articles in the paper you selected. Review: Re-examine something pointed out by lecturers or raised by discussion, and make sure your understanding.		
キーワード/Keywords	Presentation		
教科書・教材・参考書/Materials	Electronic dictionary, English-Japanese dictionary, Internet information		
受講要件（履修条件）/Prerequisites	none		

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　　（FAX）095-819-2948
備考（URL）/Remarks (URL)	Lectures will be conducted face-to-face. Supplementary classes can be held on Saturday in case of school closure due to unexpected reasons (e.g. natural disasters). Due to COVID-19 spread, class format will be inconsistent. Either online or face-to-face (or possibly other formats) will be announced
学生へのメッセージ/Message for students	
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Present an English paper, and discuss about its data (1) Lectures will be conducted face-to-face.
2nd	Present an English paper, and discuss about its data (2) Lectures will be conducted face-to-face.
3rd	Introduce experimental data, and discuss about them (1) Lectures will be conducted face-to-face.
4th	Introduce experimental data, and discuss about them (2) Lectures will be conducted face-to-face.
5th	Study how to solve research problems and get a conclusion. Lectures will be conducted face-to-face.
6th	Repeat above plans Lectures will be conducted face-to-face.

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//16.0
時間割コード／Time schedule code	202455082010D0	科目番号／Course code	55082010
科目ナンバリングコード／Numbering code	BMMP 66912_796		
授業科目名／Course title	Experiment Biomedical Sciences：Chemistry of Biofunctional Molecules／Experiment Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	山吉　麻子／Yamayoshi Asako, 山本　剛史／Yamamoto Tsuyoshi, 三瓶　悠／Mikame Yu		
授業担当教員名（科目責任者）／Instructor in charge of the course	山吉　麻子／Yamayoshi Asako		
授業担当教員名（オムニバス科目等）／Instructor(s)	山吉　麻子／Yamayoshi Asako, 山本　剛史／Yamamoto Tsuyoshi, 三瓶　悠／Mikame Yu		
科目分類／Course Category	Experiment Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	実験／Experiment
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	1, 2 and 3 year		
担当教員Eメールアドレス/E-mail address	asakoy@nagasaki-u.ac.jp/ tsuyoshi.yamamoto@nagasaki-u.ac.jp/ yu_mikame@nagasaki-u.ac.jp		
担当教員研究室/Office	Chemistry of Biofunctional molecules, 4th floor		
担当教員TEL/Tel	095-819-2438 (Yamayoshi)/ 095-819-2439 (Yamamoto)/ 095-819-2439 (Mikame)		
担当教員オフィスアワー/Office hours	AM 9:00-PM 18:00		
授業の概要及び位置づけ/Course overview	1. This class will be provided in English. 2. Under the escort of faculty members, you may have a chance to participate in academic conferences held abroad, exchange programs and field works overseas, and present your results, exchange information, and collect data abroad. 3. Prepare a report task in English.		
授業到達目標/Course goals	・ You can collect data using appropriate analysis methods (DP1 to 5) ・ You can perform appropriate statistical analysis for auantitative data and make a graph (DP1 to 5) ・ You can digitize image data or objectively interpret them (DP1 ~ 5) ・ You can logically develop description in the paper and arrange figures and tables in an appropriate order (DP1 ~ 5) ・ You can wrote research objectives, methods, results, and discussion in English (DP1-5) ・ You can read reference papers and cite appropriate ones (DP1 ~ 5) ・ You can submit a paper to scientific journals and respond to reviewer comments appropritaely (DP1-5)		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　■国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over ■B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		

成績評価の方法・基準等/Method of evaluation	Presentation tasks: It is evaluated whether the presentation contents are thoroughly investigated, whether the contents are correctly understood and summarized, whether the methods and results and considerations are correctly understood and explained, whether the story is logically developed, whether data is interpreted critically, you speak without relying on manuscripts, preserve presentation times, use figures and tables effectively, make sure that the information you cite is reliable, and whether English grammar and the expression are appropriate. Relevance of selected papers (5 points) + presentation material (5 points) + presentation content (60 points) + question and answer (20 points) = 60 points or more out of a total of 100 points are accepted.
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照
事前、事後学修の内容/Preparation & Review	【Preparation】Be ready to participate in the class activities using English. (2.5h) 【Review】Review what you learned for group discussions and presentations. (2.5h)
キーワード/Keywords	Experiment
教科書・教材・参考書/Materials	
受講要件（履修条件）/Prerequisites	
アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　　（FAX）095-819-2948
備考（URL）/Remarks (URL)	Lectures will be conducted face-to-face. Supplementary classes can be held on Saturday in case of school closure due to unexpected reasons (e.g. natural disasters). Due to COVID-19 spread, class format will be inconsistent. Either online or face-to-face (or possibly other formats) will be announced
学生へのメッセージ/Message for students	

授業計画詳細／Course Schedule

回(日時)／Time(date and time)	授業内容／Contents
1st	Getting information about individual themes Lectures will be conducted face-to-face.
2nd	Making the plan for the research Lectures will be conducted face-to-face.
3rd	Experiments Lectures will be conducted face-to-face.
4th	Report of individual experimental data Lectures will be conducted face-to-face.
5th	Repeat above plans Lectures will be conducted face-to-face.

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//4.0
時間割コード／Time schedule code	202455082000B1	科目番号／Course code	55082000
科目ナンバリングコード／Numbering code	BMMP 66812_796		
授業科目名／Course title	Exercise Biomedical Sciences：Hygienic Chemistry／Exercise Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	鳥羽　陽／Toriba Akira, 淵上　剛志／Fuchigami Takeshi, 吉田　さくら／Yoshida Sakura, 中山　守雄／Nakayama Morio, 安孫子　ユミ／Abiko Yumi		
授業担当教員名（科目責任者）／Instructor in charge of the course	鳥羽　陽／Toriba Akira		
授業担当教員名（オムニバス科目等）／Instructor(s)	鳥羽　陽／Toriba Akira, 淵上　剛志／Fuchigami Takeshi, 吉田　さくら／Yoshida Sakura, 中山　守雄／Nakayama Morio, 安孫子　ユミ／Abiko Yumi		
科目分類／Course Category	Exercise Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	演習／Seminar
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	toriba@nagasaki-u.ac.jp (Toriba), yumi.abiko.11@nagasaki-u.ac.jp (Abiko), yoshida-s@nagasaki-u.ac.jp (Yoshida)		
担当教員研究室/Office	Hygienic Chemistry		
担当教員TEL/Tel	095-819-2441 (Toriba), 095-819-2442 (Abiko), 095-819-2443 (Yoshida)		
担当教員オフィスアワー/Office hours	Monday－Friday 0:20－0:50 p.m. or by appointment		
授業の概要及び位置づけ/Course overview	It is aimed to acquire the writing ability of English article for the publishing of the experimental papers as ascientific researcher		
授業到達目標/Course goals	It is the goal to write logically the scientific articles without grammatical errors. (DP1-4)		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	□A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	The achievement level of the above-mentioned target is evaluated by following standards: understanding ability of English paper (50%) and writing ability of English paper (50%).		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Preparation before lecture (1 hour). Review after lecture (1 hour).		
キーワード/Keywords	Article search, English paper, Presentation.		
教科書・教材・参考書/Materials	English journals, English-Japanese and Japanese-English dictionaries, Biochemical encyclopedia, Scientific and Chemical encyclopedia, Handbook of Analytical Chemistry, Handbook of Chemistry.		
受講要件（履修条件）/Prerequisites	Nothing		

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948 （E-MAIL）support@ml.nagasaki-u.ac.jp
備考（URL）/Remarks (URL)	
学生へのメッセージ/Message for students	Preparation of the English paper is required in advance.
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Lecture how to write an English paper
2nd	Lecture how to write an English paper
3rd	Lecture how to write an English paper
4th	Lecture how to write an English paper
5th	Lecture how to write an English paper
6th	Lecture how to write an English paper
7th	Lecture how to write an English paper
8th	Lecture how to write an English paper
9th	Make a plan to write an English paper : Arrangement of whole contents.
10th	Write the English article of the ‘Introduction’ and ‘Materials and Methods’.
11th	Write the English article of the ‘Results’ and making the Figures and Tables.
12th	Write the English article of the ‘Results’.
13th	Write the English article of the ‘Discussion’.
14th	Write the English article of the ‘Discussion’.
15th	Write the complete English article with the references.

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//16.0
時間割コード／Time schedule code	202455082010D1	科目番号／Course code	55082010
科目ナンバリングコード／Numbering code	BMMP 66912_796		
授業科目名／Course title	Experiment Biomedical Sciences：Hygienic Chemistry／Experiment Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	鳥羽　陽／Toriba Akira, 吉田　さくら／Yoshida Sakura, 安孫子　ユミ／Abiko Yumi		
授業担当教員名（科目責任者）／Instructor in charge of the course	鳥羽　陽／Toriba Akira		
授業担当教員名（オムニバス科目等）／Instructor(s)	鳥羽　陽／Toriba Akira, 吉田　さくら／Yoshida Sakura, 安孫子　ユミ／Abiko Yumi		
科目分類／Course Category	Experiment Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	実験／Experiment
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	toriba@nagasaki-u.ac.jp (Toriba), yumi.abiko.11@nagasaki-u.ac.jp (Abiko), yoshida-s@nagasaki-u.ac.jp (Yoshida)		
担当教員研究室/Office	Hygienic Chemistry		
担当教員TEL/Tel	095-819-2441 (Toriba), 095-819-2442 (Abiko), 095-819-2443 (Yoshida)		
担当教員オフィスアワー/Office hours	Monday－Friday 0:20－0:50 p.m. or by appointment		
授業の概要及び位置づけ/Course overview	It is aimed to study how to perform the experiments of scientific theme.		
授業到達目標/Course goals	It is the goal to independently make the experiment plan for the research. (DP1-4)		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	□A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	The achievement level of the above-mentioned target is evaluated by following standards: laboratory work (50%) and presentation and communication skill (50%),.		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Preparation before lecture (1 hour). Review after lecture (1 hour).		
キーワード/Keywords	Strategy, Research, Presentation.		
教科書・教材・参考書/Materials	Scientific journals, Database		
受講要件（履修条件）/Prerequisites	Nothing		
アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　　（FAX）095-819-2948 （E-MAIL）support@ml.nagasaki-u.ac.jp		
備考（URL）/Remarks (URL)			

学生へのメッセージ/Message for students	Editing and logical consideration of the data, and in advance planning of the research experiment
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Make the strategy for the research.
2nd	Do the experiments
3rd	Analyze the experimental results, and solve problems.
4th	Do the experiments
5th	Analyze the experimental results, and solve problems.
6th	Do the experiments
7th	Summarize experimental results, report, and discuss.
8th	Present the research data at an academic meeting

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//4.0
時間割コード／Time schedule code	202455082000B2	科目番号／Course code	55082000
科目ナンバリングコード／Numbering code	BMMP 66812_796		
授業科目名／Course title	Exercise Biomedical Sciences：Analytical Chemistry／Exercise Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	黒田　直敬／Naotaka Kuroda, 岸川　直哉／Kishikawa Naoya		
授業担当教員名（科目責任者）／Instructor in charge of the course	黒田　直敬／Naotaka Kuroda		
授業担当教員名（オムニバス科目等）／Instructor(s)	黒田　直敬／Naotaka Kuroda, 岸川　直哉／Kishikawa Naoya		
科目分類／Course Category	Exercise Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	演習／Seminar
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	1, 2 and 3 year		
担当教員Eメールアドレス/E-mail address	n-kuro@nagasaki-u.ac.jp		
担当教員研究室/Office	Analytical Chemistry, 5th floor		
担当教員TEL/Tel	095-819-2894 (Kuroda)		
担当教員オフィスアワー/Office hours	AM 10:30-PM 18:00		
授業の概要及び位置づけ/Course overview	To learn how to demonstrate about contents of scientific papers, and individual experimental data.		
授業到達目標/Course goals	Students will be able to attain the ability to solve individual research problems (DP-2,		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over ■B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Presentation ability(30%), Discussion ability(30%), Aggressiveness(40%)		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Preliminary : Read and understand the contents of research papers in English, and prepare a manuscript for presentation in the seminar. (0.5 h) Post-learning: Conduct discussions with supervisor to deepen their understanding and consider the relevance to their own research theme. (0.5h)		
キーワード/Keywords	Presentation		
教科書・教材・参考書/Materials	Electronic dictionary, English-Japanese dictionary, Internet information		
受講要件（履修条件）/Prerequisites	none		
アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　　（FAX）095-819-2948		

備考（URL）/Remarks (URL)	Classes are conducted in a face-to-face format. In the event of a university-wide cancellation of classes due to typhoons or other unforeseen circumstances, make-up classes may be held on Saturdays.
学生へのメッセージ/Message for students	
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Present an English paper, and discuss about its data (1)
2nd	Present an English paper, and discuss about its data (2)
3rd	Introduce experimental data, and discuss about them (1)
4th	Introduce experimental data, and discuss about them (2)
5th	Study how to solve research problems and get a conclusion.
6th	Repeat above plans

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//16.0
時間割コード／Time schedule code	202455082010D2	科目番号／Course code	55082010
科目ナンバリングコード／Numbering code	BMMP 66912_796		
授業科目名／Course title	Experiment Biomedical Sciences：Analytical Chemistry／Experiment Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	黒田　直敬／Naotaka Kuroda, 岸川　直哉／Kishikawa Naoya		
授業担当教員名（科目責任者）／Instructor in charge of the course	黒田　直敬／Naotaka Kuroda		
授業担当教員名（オムニバス科目等）／Instructor(s)	黒田　直敬／Naotaka Kuroda, 岸川　直哉／Kishikawa Naoya		
科目分類／Course Category	Experiment Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	実験／Experiment
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	1, 2 and 3 year		
担当教員Eメールアドレス/E-mail address	n-kuro@nagasaki-u.ac.jp		
担当教員研究室/Office	Analytical Chemistry, 5th floor		
担当教員TEL/Tel	095-819-2894 (Kuroda)		
担当教員オフィスアワー/Office hours	AM 10:30-PM 18:00		
授業の概要及び位置づけ/Course overview	To learn how to carry out experimets of scientific theme, and to get the positive data.		
授業到達目標/Course goals	・ An appropriate research plan necessary to achieve the research purpose can be prepared. (DP-1, DP-2, DP-3) ・ Appropriate method and analysis can be performed. (DP-1, DP-2, DP-3) ・ Reasonable conclusions can be deduced based on the research results. (DP-3, DP-5)		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　■協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	□A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over ■B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills ■D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	The criteria for evaluation are based on research performance, understanding of the purpose, the validity of the planning, considerations and conclusions. The achievement level of the above-mentioned target (DP) is evaluated by following standards. Interim presentation (10%), Master's thesis (50%), Master's thesis presentation (20%) and		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Preliminary : Read research papers in related to own reserach works in order to, understand the contents, and make the research plans (1h). Post-learning: Conduct discussions with supervisor to identify research concerns, and consider improvement points (1.25h).		
キーワード/Keywords	Experiment		
教科書・教材・参考書/Materials			
受講要件（履修条件）/Prerequisites			

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　　（FAX）095-819-2948
備考（URL）/Remarks (URL)	Classes are conducted in a face-to-face format. In the event of a university-wide cancellation of classes due to typhoons or other unforeseen circumstances, make-up classes may be held on Saturdays.
学生へのメッセージ/Message for students	
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Getting information about individual themes
2nd	Making the plan for the research
3rd	Experiments
4th	Report of individual experimental data
5th	Repeat above plans

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//4.0
時間割コード／Time schedule code	202455082000B3	科目番号／Course code	55082000
科目ナンバリングコード／Numbering code	BMMP 66812_796		
授業科目名／Course title	Exercise Biomedical Sciences：Pharmacotherapeutics／Exercise Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	塚元　和弘／Tsukamoto Kazuhiro, 平山　達朗／Hirayama Tatsuro		
授業担当教員名（科目責任者）／Instructor in charge of the course	塚元　和弘／Tsukamoto Kazuhiro		
授業担当教員名（オムニバス科目等）／Instructor(s)	塚元　和弘／Tsukamoto Kazuhiro, 平山　達朗／Hirayama Tatsuro		
科目分類／Course Category	Exercise Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	演習／Seminar
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	ktsuka@nagasaki-u.ac.jp		
担当教員研究室/Office	Department of Pharmacotherapeutics		
担当教員TEL/Tel	095-819-8573		
担当教員オフィスアワー/Office hours	Monday-Friday 9:00-17:00		
授業の概要及び位置づけ/Course overview	To teach clinical and molecular genetics		
授業到達目標/Course goals	1. To understand the methods to identify the disease-susceptible and drug-responsible genes for multifactorial disorders, and an application to nucleic acids-based diagnosis		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	brief examination at each class (40%) and report (60%)		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	The personalized medicine composes the nucleic acids-based diagnosis and genome-based gene discovery including the susceptible genes for diseases and the drug-responsible genes. The association study using genetic polymorphic markers is a strong tool to identify the disease-susceptible and drug-responsible genes for multifactorial disorders.		
キーワード/Keywords	genetic polymorphisms, association study, multifactorial disorders, nucleic acids-based diagnosis		
教科書・教材・参考書/Materials	none		
受講要件（履修条件）/Prerequisites			
アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information (TEL) 095-819-2006　　(FAX) 095-819-2948		
備考（URL）/Remarks (URL)	in-person class		

学生へのメッセージ/Message for students	Review what you learned.
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	in-person class: Clinical human genetics I
2nd	in-person class: Clinical human genetics II
3rd	in-person class: Molecular human genetics I
4th	in-person class: Molecular human genetics II
5th	in-person class: Genetic polymorphisms and detecting techniques
6th	in-person class: Multifactorial disorders and association study
7th	in-person class: Identification of disorder-susceptible and drug-responsible genes
8th	in-person class: Nucleic acids-based diagnosis

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//16.0
時間割コード／Time schedule code	202455082010D3	科目番号／Course code	55082010
科目ナンバリングコード／Numbering code	BMMP 66912_796		
授業科目名／Course title	Experiment Biomedical Sciences：Pharmacotherapeutics／Experiment Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	塚元　和弘／Tsukamoto Kazuhiro, 平山　達朗／Hirayama Tatsuro		
授業担当教員名（科目責任者）／Instructor in charge of the course	塚元　和弘／Tsukamoto Kazuhiro		
授業担当教員名（オムニバス科目等）／Instructor(s)	塚元　和弘／Tsukamoto Kazuhiro, 平山　達朗／Hirayama Tatsuro		
科目分類／Course Category	Experiment Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	実験／Experiment
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	Master course		
担当教員Eメールアドレス/E-mail address	ktsuka@nagasaki-u.ac.jp		
担当教員研究室/Office	Department of Pharmacotherapeutics		
担当教員TEL/Tel	095-819-8573		
担当教員オフィスアワー/Office hours	Monday-Friday 9:00-17:00		
授業の概要及び位置づけ/Course overview	To identify the disease-susceptible genes or drug-responsible genes by candidate gene-based association study		
授業到達目標/Course goals	1. To learn molecular genetics techniques and skills in both bioinformatics and statistical analyses, as well as to understand the concept of methodology on association study, especially case-control study		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　■協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	□A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over ■B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives ■C.技能修得のために実践する活動 / Activities to practice for acquiring skills ■D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Master ' s dissertation (100%)		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	The personalized medicine composes the nucleic acids-based diagnosis and genome-based gene discovery including the susceptible genes for diseases and the drug-responsible genes. The association study using genetic polymorphic markers is a strong tool to identify the disease-susceptible and drug-responsible genes for multifactorial disorders.		
キーワード/Keywords	genetic polymorphisms, bioinformatics, association study, disease-susceptibility, drug responsibility		
教科書・教材・参考書/Materials	None		
受講要件（履修条件）/Prerequisites			
アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　　（FAX）095-819-2948		

備考（URL）/Remarks (URL)	in-person class
学生へのメッセージ/Message for students	Review what you learned.
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1-2	in-person class: DNA and RNA extraction
3	in-person class: Selection of candidate genes for the disease-susceptibility or drug
4	in-person class: Getting information on genetic polymorphisms of candidate genes from genome database (bioinformatics)
5-6	in-person class: Analyses of genetic polymorphisms of candidate genes (1)
7-8	in-person class: Analyses of genetic polymorphisms of candidate genes (2)
9-10	in-person class: Analyses of genetic polymorphisms of candidate genes (3)
11-12	in-person class: Statistical analyses
13-14	in-person class: Discussion on the results
15	in-person class: Writing a manuscript
16	in-person class: Submission of a master's dissertation

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0, 日／Sun 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//4.0
時間割コード／Time schedule code	202455082000B4	科目番号／Course code	55082000
科目ナンバリングコード／Numbering code	BMMP 66812_796		
授業科目名／Course title	Exercise Biomedical Sciences：Pharmaceutical Informatics／Exercise Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	川上　茂／Kawakami Shigeru, 向井　英史／Mukai Hidefumi		
授業担当教員名（科目責任者）／Instructor in charge of the course	川上　茂／Kawakami Shigeru		
授業担当教員名（オムニバス科目等）／Instructor(s)	川上　茂／Kawakami Shigeru, 向井　英史／Mukai Hidefumi		
科目分類／Course Category	Exercise Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	演習／Seminar
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	1th, 2th		
担当教員Eメールアドレス/E-mail address	skawakam@nagasaki-u.ac.jp		
担当教員研究室/Office	Professor Room, Department of Pharmaceutical Informatics		
担当教員TEL/Tel	095-819-8563		
担当教員オフィスアワー/Office hours	13:00-17:00, Appointment via E-mail is necessary.		
授業の概要及び位置づけ/Course overview	This course provides fundamental skills in organizing and presentaing document on a particular topic regarding pharmaceutical informatics from scientific papers.		
授業到達目標/Course goals	To understand the content of the scientific papers and find the relashionship between scientific papers and own research.		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　■多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　■国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	□A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills ■D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Ability of presentation (70%), Ability of discussion (30%)		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Prior learning: Understanding of the scientific papers (2h) Post learning: Understanding of the scientific papers after discussion (2h) All the class will be conducted in English.（この授業は全て英語で行います。）		
キーワード/Keywords	Pharmaceutial Informatics, Presentation Skill		
教科書・教材・参考書/Materials			
受講要件（履修条件）/Prerequisites	None		
アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommdations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information (TEL) 095-819-2006　(FAX) 095-819-24948		
備考（URL）/Remarks (URL)			
学生へのメッセージ/Message for students	None		

授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Searching the scientific papers related to own research from Pubmed
2nd	Preparing a document for oral presentation
3rd	Oral presentation and discussion(1)
4th	Oral presentation and discussion(5)
5th	Oral presentation and discussion(6)
6th	Oral presentation and discussion(7)
7th	Oral presentation and discussion(8)
8th	Oral presentation and discussion(9)
9th	Oral presentation and discussion(10)
10th	Oral presentation and discussion(11)
11th	Oral presentation and discussion(12)
12th	Oral presentation and discussion(12)
13th	Oral presentation and discussion(11)
14th	Oral presentation and discussion(12)
15th	Oral presentation and discussion(13)

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//16.0
時間割コード／Time schedule code	202455082010D4	科目番号／Course code	55082010
科目ナンバリングコード／Numbering code	BMMP 66912_796		
授業科目名／Course title	Experiment Biomedical Sciences：Pharmaceutical Informatics／Experiment Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	川上　茂／Kawakami Shigeru, 向井　英史／Mukai Hidefumi		
授業担当教員名（科目責任者）／Instructor in charge of the course	川上　茂／Kawakami Shigeru		
授業担当教員名（オムニバス科目等）／Instructor(s)	川上　茂／Kawakami Shigeru, 向井　英史／Mukai Hidefumi		
科目分類／Course Category	Experiment Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	実験／Experiment
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	1th, 2th		
担当教員Eメールアドレス/E-mail address	skawakam@nagasaki-u.ac.jp		
担当教員研究室/Office	Professor Room, Department of Pharmaceutical Informatics		
担当教員TEL/Tel	095-819-8563		
担当教員オフィスアワー/Office hours	13:00-17:00, Appointment via E-mail is necessary,		
授業の概要及び位置づけ/Course overview	Learing experimental methods used for research of pharmaceutical informatics.		
授業到達目標/Course goals	The goal of this class is i) laerning evaluation method using cultured cells and animals, ii) making a presentation document of own research, iii) preparing a scientic paper of own research.		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	□汎用的能力／Generic Competence　□倫理観／Ethics　■多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　□考えをやり取りする力／Ability to exchange ideas　■国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	□A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills ■D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Obtained paper 70%, Experimental skill and behavior 30%		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	Prior learning: Understanding of the scientific papers (1.5h) Post learning: Understanding of the scientific papers after discussion (1h) All the class will be conducted in English.（この授業は全て英語で行います。）		
キーワード/Keywords	Pharmceutical inforamtics, Targeting		
教科書・教材・参考書/Materials	Scientific papers		
受講要件（履修条件）/Prerequisites	None		
アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommdations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information (TEL) 095-819-2006　(FAX) 095-819-24948		
備考（URL）/Remarks (URL)			

学生へのメッセージ/Message for students	None
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st	Study about formulation.
2nd	Study about evaluation method of physicochemical properties of formaulation.
3rd	Study about evaluation method using cultured cells on cellular uptake (1).
4th	Study about evaluation method using cultured cells on cellular uptake (2).
5th	Study about evaluation method using cultured cells on pharamcological effect(1).
6th	Study about evaluation method using cultured cells on pharamcological effect(2).
7th	Study about evaluation method using rodents on pharmacokinetics (1).
8th	Study about evaluation method using rodents on pharmacokinetics (2).
9th	Study about evaluation method using rodents on pharamcological effect (1).
10th	Study about evaluation method using rodents on pharamcological effect (2).
11th	Discussion about obtained results.
12th	Preparation of presentation (1)
13th	Preparation of presentation (2)
14th	Preparation of scientific paper (1)
15th	Preparation of scientific paper (2)

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//4.0
時間割コード／Time schedule code	202455082000B5	科目番号／Course code	55082000
科目ナンバリングコード／Numbering code	BMMP 66812_796		
授業科目名／Course title	Exercise Biomedical Sciences：Pharmaceutics／Exercise Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	西田　孝洋／Nishida Koyo, 麓　伸太郎／Fumoto Shintaro, 宮元　敬天／Hirotaka Miyamoto		
授業担当教員名（科目責任者）／Instructor in charge of the course	西田　孝洋／Nishida Koyo		
授業担当教員名（オムニバス科目等）／Instructor(s)	西田　孝洋／Nishida Koyo, 麓　伸太郎／Fumoto Shintaro, 宮元　敬天／Hirotaka Miyamoto		
科目分類／Course Category	Exercise Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	演習／Seminar
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	特別コース		
担当教員Eメールアドレス/E-mail address	koyo-n@nagasaki-u.ac.jp		
担当教員研究室/Office	歯学部本館7階　薬剤学教授室		
担当教員TEL/Tel	095-819-8566		
担当教員オフィスアワー/Office hours	火・金曜日 16:00-18:00（LACSで予定を確認すること）、メールでも対応。		
授業の概要及び位置づけ/Course overview	Aim/ The aim of this subject is to acquire abilities to understand scientific paper(s), summarize background, method and results, and make a presentation of the paper(s).		
授業到達目標/Course goals	Goal/ To acquire abilities for objective critique and creative research, students should precisely understand positioning of findings in scientific papers at the area of relevant study, be able to point out problems to be elucidated, and consider concrete solution.		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over □B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	Ability to understand scientific papers 50%　　Ability for questions and answers 50%		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	In advance, study textbook concerning experiment, after the experiment review the		
キーワード/Keywords	Searching scientific papers		
教科書・教材・参考書/Materials	Scientific journals written in English		
受講要件（履修条件）/Prerequisites	none		

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948
備考（URL）/Remarks (URL)	Class will be held on site. http://www.ph.nagasaki-u.ac.jp/
学生へのメッセージ/Message for students	Preparation studies for reading scientific papers and replying to questions are required.
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st 4/9	Attending a lecture for database and searching method of scientific papers.
2nd 4/23	Attending a lecture how to read experimental methods, results and discussion.
3rd 5/7	Selecting a scientific paper, making a presentation of summary of the study, and replying to questions (1)
4th 5/21	Selecting a scientific paper, making a presentation of summary of the study, and replying to questions (2)
5th 6/4	Selecting a scientific paper, making a presentation of summary of the study, and replying to questions (3)
6th 6/18	Selecting a scientific paper, making a presentation of summary of the study, and replying to questions (4)
7th 7/2	Selecting a scientific paper, making a presentation of summary of the study, and replying to questions (5)
8th 7/23	Selecting a scientific paper, making a presentation of summary of the study, and replying to questions (6)
9th 10/1	Selecting a scientific paper, making a presentation of summary of the study, and replying to questions (7)
10th 10/15	Selecting a scientific paper, making a presentation of summary of the study, and replying to questions (8)
11th 10/29	Selecting a scientific paper, making a presentation of summary of the study, and replying to questions (9)
12th 11/12	Selecting a scientific paper, making a presentation of summary of the study, and replying to questions (10)
13th 11/26	Selecting a scientific paper, making a presentation of summary of the study, and replying to questions (11)
14th 12/10	Selecting a scientific paper, making a presentation of summary of the study, and replying to questions (12)
15th 12/24	Selecting a scientific paper, making a presentation of summary of the study, and replying to questions (13)

学期／Semester	2024年度／Academic Year　後期／Second Semester	曜日・校時／Day・Period	他／Others 0
開講期間／Course duration	2024/09/30～2026/09/29		
必修選択／Required / Elective	必修／required	単位数(一般/編入/留学)／Credits (General /Transfer/Overseas)	//16.0
時間割コード／Time schedule code	202455082010D5	科目番号／Course code	55082010
科目ナンバリングコード／Numbering code	BMMP 66912_796		
授業科目名／Course title	Experiment Biomedical Sciences：Pharmaceutics／Experiment Biomedical Sciences		
編集担当教員／Instructor in charge of the course syllabus	西田　孝洋／Nishida Koyo, 麓　伸太郎／Fumoto Shintaro		
授業担当教員名（科目責任者）／Instructor in charge of the course	西田　孝洋／Nishida Koyo		
授業担当教員名（オムニバス科目等）／Instructor(s)	西田　孝洋／Nishida Koyo, 麓　伸太郎／Fumoto Shintaro		
科目分類／Course Category	Experiment Biomedical Sciences		
対象年次／Intended year	1, 2	講義形態／Course style	実験／Experiment
教室／Class room	〔薬学〕各担当教員研究室／Laboratory		
対象学生（クラス等）　/Intended year (class)	特別コース		
担当教員Eメールアドレス/E-mail address	koyo-n@nagasaki-u.ac.jp		
担当教員研究室/Office	歯学部本館7階　薬剤学教授室		
担当教員TEL/Tel	095-819-8566		
担当教員オフィスアワー/Office hours	火・金曜日 16:00-18:00（LACSで予定を確認すること）、メールでも対応。		
授業の概要及び位置づけ/Course overview	Aim/ It is required for researchers in the clinical pharmacy to develop novel drug delivery system delivering drugs to specific target site. Researchers also should individually resolve problems of the research. The aim of this subject is to acquire these abilities through experiments and discussion.		
授業到達目標/Course goals	Goal/ The goal of this subject is to develop administration methods and formulations for delivering drugs to specific organ. Student will report findings in academic conference and write scientific paper(s) for submitting to journal.		
知識・技能以外に、この授業を通して身につけて欲しい力（1つ以上3つまで）/Abilities other than knowledge and skills acquired mainly through the course (pick 1 to 3)	■汎用的能力／Generic Competence　□倫理観／Ethics　□多様性の理解／Understanding Diversity　■主体性／Autonomy　□協働性／Cooperativeness　■考えをやり取りする力／Ability to exchange ideas　□国際・地域社会への関心／Interest in international / local society		
学生の思考を活性化させるための授業手法/Teaching method to stimulate students' thinking	■A.授業内容の理解度を確認したり自分で考えさせたりする活動 / Activities to check the degree of comprehension of the contents to the lesson or to think over ■B.多角的に考えるために他者と関わる活動 / Activities involving others to think from various perspectives □C.技能修得のために実践する活動 / Activities to practice for acquiring skills □D.問題解決のために知識を総合的に活用する活動 / Activities that comprehensively utilize knowledge to solve problems □E.上記以外の学生の思考の活性化を促す授業手法 / Teaching methods to stimulate students' thinking other than the above □F.教員からの講義のみで構成される / It consists only of lectures from teachers		
成績評価の方法・基準等/Method of evaluation	50%writing paper, 50% experiment		
各回の授業内容・授業方法（学習指導方法）/Course contents of each lesson	詳細は授業計画詳細を参照		
事前、事後学修の内容/Preparation & Review	In advance, study textbook concerning experiment, after the experiment review the		
キーワード/Keywords	DDS		
教科書・教材・参考書/Materials	Scientific journals written in English		
受講要件（履修条件）/Prerequisites	Scientific English		

アクセシビリティ/Accessibility (for students with disabilities)	In order to ensure equal educational opportunities for all students, Nagasaki University strives to remove societal barriers that may interfere with academic activities, and to provide reasonable accommodations as necessary and appropriate. If you have any questions or concerns regarding reasonable accommodations or other support in this class, please feel free to talk to the instructor (contact information above), or contact the Student Accessibility Office. Student Accessibility Office contact information （TEL）095-819-2006　（FAX）095-819-2948
備考（URL）/Remarks (URL)	Class will be held on site. http://www.ph.nagasaki-u.ac.jp/
学生へのメッセージ/Message for students	none
授業計画詳細／Course Schedule	
回(日時)／Time(date and time)	授業内容／Contents
1st 4/9	Study about recent researches in drug delivery system.
2nd 4/23	Scheduling experiments. Comprehending unknown points by understanding published information.
3rd 5/7	Deliberating administration methods for drug delivery system.
4th 5/21	Deliberating administration preparations for drug delivery system.
5th 6/4	Discussion of experimental plan on seminar of Department of Pharmaceutics.
6th 6/18	Study about disposition of drugs after administration onto organ surface.
7th 7/2	Study about experimental method utilizing glass-made cylindrical diffusion cell for investigation of absorption from organ surface.
8th 7/23	Study about experimental condition (administration dose, volume) for organ surface application of drugs.
9th 10/1	Study about formulations for administration of drugs onto organ surface.
10th 10/15	Discussion of findings in midterm conference of Department of Pharmaceutics.
11th 10/29	Study about formulations which are applicable for clinical use.
12th 11/12	Study about species differences and animal scale-up.
13th 11/26	Discussion of findings in final conference of Department of Pharmaceutics.
14th 12/10	Writing draft in English.
15th 12/24	Completing scientific paper and submitting it to a scientific journal.