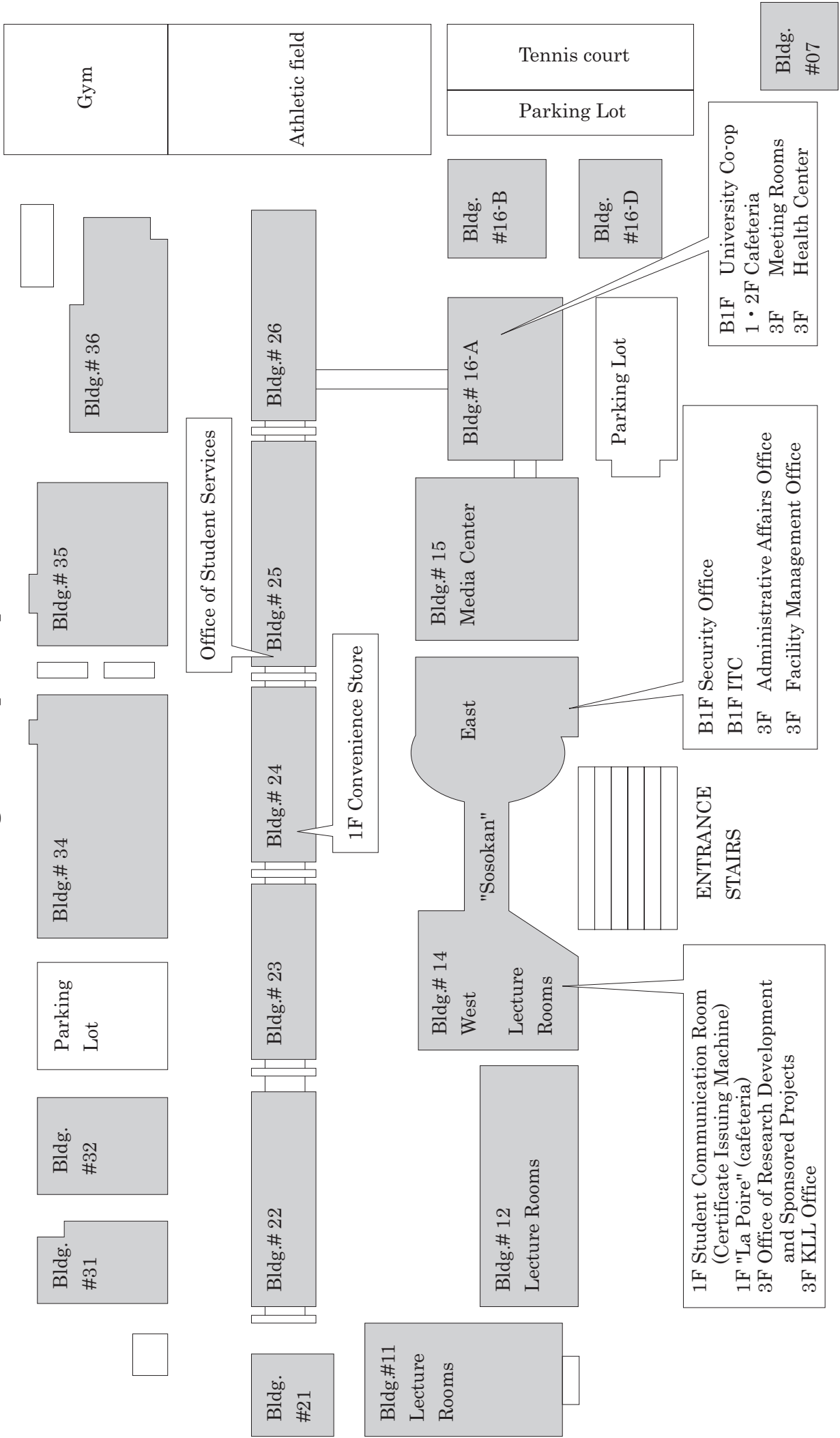


Course Guidebook and Syllabus

Graduate School of Science and Technology

Keio University, 2017

Yagami Campus Map



Bldg.# 36

Bldg.# 35

Bldg.# 34

Parking Lot

Bldg.# 32

Bldg.# 31

Office of Student Services

Bldg.# 26

Bldg.# 25

Bldg.# 24

1F Convenience Store

Bldg.# 23

Bldg.# 22

Bldg.# 21

Bldg.#11
Lecture Rooms

Bldg.# 12
Lecture Rooms

Bldg.# 14
West Lecture Rooms

East
"Sosokan"

Bldg.# 15
Media Center

Bldg.# 16-A

Bldg.#16-B

Bldg.#16-D

Parking Lot

Tennis court
Parking Lot

Bldg.#07

B1F University Co-op
1 • 2F Cafeteria
3F Meeting Rooms
3F Health Center

B1F Security Office
B1F ITC
3F Administrative Affairs Office
3F Facility Management Office

ENTRANCE
STAIRS

1F Student Communication Room
(Certificate Issuing Machine)
1F "La Poire" (cafeteria)
3F Office of Research Development
and Sponsored Projects
3F KLL Office

TABLE OF CONTENTS

Graduate School of Science and Technology 2017 Staff List	2
2017 Class Schedule	4
2017 Academic Calendar	8
Offices and Facilities	10
Student ID Card, Notifications and Certificates	12
Student ID Card	
Notifications and Certificates	
Course Registration, Classes and Grades	14
Important Notes for Course Registration	
Course Registration Procedures	
Course Registration Cancellation Period	
Classes in Emergency Situations	
Classes on Waseda-Keio Baseball Game Days	
Grades	
Temporary Leave of Absence, Withdrawal from University	17
Temporary Leave of Absence	
Withdrawal from University	
Examinations and Papers	18
Final Examinations	
Makeup Examinations	
Term Papers	
Web System	19
Jukusei (Keio students) Website	
keio.jp	
Academic Affairs (Gakuji) Web System	
Courses for International Graduate Programs on Advances Science and Technology	21
Curriculum for International Students	23
Requirements for Completion	25
Master's Program	
Required Credits	
Master's Thesis	
Types of Master's Degrees	
Ph. D. Program	
Required Credits	
Details and Standards of Ph. D. Degree Evaluation	
Types of Ph.D. Degrees	
Ph.D. Thesis Assignment	
Master's Thesis Assignment	29
Syllabus	31

*All courses in each section are listed in an alphabetical order by course name.

- General Course
- School of Fundamental Science and Technology
- School of Integrated Design Engineering
- School of Science for Open and Environmental Systems
- Center for Japanese Studies
- Ph.D. Program

Graduate School of Science and Technology 2017 Staff List

Dean	Professor	ITOH, Kohei M.
Chief Academic Coordinator	Professor	KANNARI, Fumihiko
Director		
School of Fundamental Science and Technology	Professor	TAKANO, Hiroshi
School of Integrated Design Engineering	Professor	OKADA, Eiji
School of Science for Open and Environmental Systems	Professor	AMANO, Hideharu
Chief of Center		
School of Fundamental Science and Technology		
Center for Mathematics	Professor	MINAMI, Mihoko
Center for Physics	Professor	ETO, Mikio
Center for Molecular Chemistry	Professor	YAMADA, Tohru
Center for Applied Physics and Physico-Informatics	Professor	MATOBA, Masanori
Center for Chemical Biology	Professor	FUJIMOTO, Yukari
Center for Biosciences and Informatics	Professor	OKA, Kotaro
School of Integrated Design Engineering		
Center for Multidisciplinary and Design Science	Professor	SHIZAWA, Kazuyuki
Center for System Integration Engineering	Professor	OHMORI, Hiromitsu
Center for Electronics and Electrical Engineering	Professor	TSUDA, Hiyoyuki
Center for Material Design Science	Professor	EINAGA, Yasuaki
School of Science for Open and Environmental Systems		
Center for Space and Environment Design Engineering	Professor	KOHIYAMA, Masayuki
Center for Science of Environment and Energy	Professor	UEDA, Toshihisa
Center for Applied and Computational Mechanics	Professor	MATSUO, Akiko
Center for Information and Computer Science	Professor	FUJISHIRO, Issei
Center for Open Systems Management	Professor	SUZUKI, Hideo

Vice Academic Coordinator**School of Fundamental Science and Technology**

Center for Mathematics	Professor	ATSUJI, Atsushi
Center for Physics	Professor	OKA, Tomoharu
Center for Molecular Chemistry	Associate Professor	SAIKAWA, Yoko
Center for Applied Physics and Physico-Informatics	Associate Professor	KAMIHARA, Yoichi
Center for Chemical Biology	Professor	SUENAGA, Kiyotake
Center for Biosciences and Informatics	Professor	SATO, Toshinori

School of Integrated Design Engineering

Center for Multidisciplinary and Design Science	Associate Professor	ONOE, Hiroaki
Center for System Integration Engineering	Associate Professor	YAKOH, Takahiro
Center for Electronics and Electrical Engineering	Associate Professor	YUKAWA, Masahiro
Center for Material Design Science	Associate Professor	OAKI, Yuya

School of Science for Open and Environmental Systems

Center for Space and Environment Design Engineering	Associate Professor	NAKAZAWA, Kazuo
Center for Science of Environment and Energy	Associate Professor	YOKOMORI, Takeshi
Center for Applied and Computational Mechanics	Professor	FUKAGATA, Koji
Center for Information and Computer Science	Professor	NISHI, Hiroaki
Center for Open Systems Management	Associate Professor	NAKANISHI, Miwa

Vice Academic Coordinator for General Courses	Professor	MATSUOKA, Yoshiyuki
Vice Academic Coordinator for International Students	Professor	MURAKAMI, Toshiyuki

2017 Class Schedule

Spring Semester

*Circled numbers are the class days (class number)

①-⑭: The number of class days on a semester system

①-⑭, (1)-(14): The number of class days on a quarter system

April

SUN	MON	TUE	WED	THU	FRI	SAT
						1
2	3	4 Graduate School Entrance Ceremony and Guidance	5 Graduate School Guidance	6	7 ①①②	8 ①①②
9	10 ①①②	11 ①①②	12 ①①②	13 ①①②	14 ②③④	15 ②③④
16	17 ②③④	18 ②③④	19 ②③④	20 ②③④	21 ③⑤⑥	22 ③⑤⑥
23 Keio Foundation Day	24 ③⑤⑥	25 ③⑤⑥	26 ③⑤⑥	27 ③⑤⑥	28 ④⑦⑧	29 Day of Showa Holiday
30						

May

SUN	MON	TUE	WED	THU	FRI	SAT
	1 ④⑦⑧	2 ④⑦⑧	3 Constitution Memorial Day Holiday	4 Greenery Day Holiday	5 Children's Day Holiday	6 ④⑦⑧
7	8 ⑤⑨⑩	9 ⑤⑨⑩	10 ④⑦⑧	11 ④⑦⑧	12 ⑤⑨⑩	13 ⑤⑨⑩
14	15 ⑥⑪⑫	16 ⑥⑪⑫	17 ⑤⑨⑩	18 ⑤⑨⑩	19 ⑥⑪⑫	20 ⑥⑪⑫
21	22 ⑦⑬⑭	23 ⑦⑬⑭	24 ⑥⑪⑫	25 ⑥⑪⑫	26 ⑦⑬⑭	27 ⑦⑬⑭
28	29 ⑧(1)(2)	30 ⑧(1)(2)	31 ⑦⑬⑭			

June

SUN	MON	TUE	WED	THU	FRI	SAT
				1 ⑦⑬⑭	2 Exam Period	3 ⑧(1)(2)
4	5 Exam Period	6 ⑨(3)(4)	7 ⑧(1)(2)	8 ⑧(1)(2)	9 ⑧(1)(2)	10 ⑨(3)(4)
11	12 ⑨(3)(4)	13 ⑩(5)(6)	14 ⑨(3)(4)	15 ⑨(3)(4)	16 ⑨(3)(4)	17 ⑩(5)(6)
18	19 ⑩(5)(6)	20 ⑪(7)(8)	21 ⑩(5)(6)	22 ⑩(5)(6)	23 ⑩(5)(6)	24 ⑪(7)(8)
25	26 ⑪(7)(8)	27 ⑫(9)(10)	28 ⑪(7)(8)	29 ⑪(7)(8)	30 ⑪(7)(8)	

June 2 & 5: Examination period of the first half of spring semester (*only for courses adopting a quarter system)

<First class day of the courses held in the second half of spring semester>

Monday	May 29
Tuesday	May 30
Wednesday	June 7
Thursday	June 8
Friday	June 9
Saturday	June 3

Please check the bulletin and web bulletin for class information.

July

SUN	MON	TUE	WED	THU	FRI	SAT
						1 ⑫(9)(10)
2	3 ⑫(9)(10)	4 ⑬(11)(12)	5 ⑫(9)(10)	6 ⑫(9)(10)	7 ⑫(9)(10)	8 ⑬(11)(12)
9	10 ⑬(11)(12)	11 ⑭(13)(14)	12 ⑬(11)(12)	13 ⑬(11)(12)	14 ⑬(11)(12)	15 ⑭(13)(14)
16	17 Marine Day ⑭(13)(14)	18 Additional class makeup day	19 ⑭(13)(14)	20 ⑭(13)(14)	21 ⑭(13)(14)	22 Exam Period
23	24	25	26	27	28	29
	Exam Period					
30	31 Exam Period					

August

SUN	MON	TUE	WED	THU	FRI	SAT
		1	2	3	4	5
		Summer Recess				
6	7	8	9	10	11 Mountain Day Holiday	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

July 17 (Marine Day): Class day

July 18: Additional class makeup day

Please check the bulletin and web bulletin for class information.

Class Timetable

Period	Standard	Examination period	
	Yagami and Hiyoshi	Yagami	Hiyoshi
1	9:00 - 10:30	9:00 - 10:30	9:30 - 10:30
2	10:45 - 12:15	10:45 - 12:15	10:50 - 11:50
3	13:00 - 14:30	13:00 - 14:30	12:50 - 13:50
4	14:45 - 16:15	14:45 - 16:15	14:10 - 15:10
5	16:30 - 18:00	16:30 - 18:00	15:30 - 16:30
6	18:10 - 19:40	18:10 - 19:40	16:50 - 17:50

Fall Semester

September

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
					Summer Recess	
3	4	5	6	7	8	9
10	11	12	13	14 Commencement Ceremony	15 Graduate School Entrance Ceremony	16
17	18 Respect for the Aged Day Holiday	19	20 Graduate School Guidance	21	22 ① ① ②	23 Autumnal Equinox Day ① ① ②
24	25 ① ① ②	26 ① ① ②	27 ① ① ②	28 ① ① ②	29 ② ③ ④	30 ② ③ ④
		← Online Course Registration Period →				

September 23 (Autumnal Equinox Day): Class day

October

SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
	②③④	②③④	②③④	②③④	③⑤⑥	③⑤⑥
8	9 Sports Day Holiday	10	11	12	13	14
		③⑤⑥	③⑤⑥	③⑤⑥	④⑦⑧	④⑦⑧
15	16	17	18	19	20	21
	③⑤⑥	④⑦⑧	④⑦⑧	④⑦⑧	⑤⑨⑩	⑤⑨⑩
22	23	24	25	26	27	28
	④⑦⑧	⑤⑨⑩	⑤⑨⑩	⑤⑨⑩	⑥⑪⑫	⑥⑪⑫
29	30	31				
	⑤⑨⑩	⑥⑪⑫				

November

SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3 Culture Day Additional class makeup day	4
			⑥⑪⑫	⑥⑪⑫		⑦⑬⑭
5	6	7	8	9	10	11
	⑥⑪⑫	⑦⑬⑭	⑦⑬⑭	⑦⑬⑭	⑦⑬⑭	Exam Period
12	13	14	15	16	17	18
	⑦⑬⑭	⑧(1)(2)	⑧(1)(2)	⑧(1)(2)	⑧(1)(2)	⑧(1)(2)
19	20	21	22	23	24	25
	⑧(1)(2)	Exam Period	⑨(3)(4)	Labor Thanksgiving Day	Mita Festival	
26 Mita Festival	27	28	29	30		
	⑨(3)(4)	⑨(3)(4)	⑩(5)(6)	⑨(3)(4)		

December

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
					⑨(3)(4)	⑨(3)(4)
3	4	5	6	7	8	9
	⑩(5)(6)	⑩(5)(6)	⑪(7)(8)	⑩(5)(6)	⑩(5)(6)	⑩(5)(6)
10	11	12	13	14	15	16
	⑪(7)(8)	⑪(7)(8)	⑫(9)(10)	⑪(7)(8)	⑪(7)(8)	⑪(7)(8)
17	18	19	20	21	22	23 Emperor's Birthday
	⑫(9)(10)	⑫(9)(10)	⑬(11)(12)	⑫(9)(10)	⑫(9)(10)	⑫(9)(10)
24	25	26	27	28	29	30
	⑬(11)(12)	⑬(11)(12)	⑭(13)(14)	Winter Recess		
31						

December 23 (Emperor's Birthday): Class day

November 11 & 21: Examination period of the first half of fall semester (*only for courses adopting a quarter system)

November 3 (Culture Day): Additional class makeup day

<First class day of the courses held in the second half of fall semester>

Monday	November 20
Tuesday	November 14
Wednesday	November 15
Thursday	November 16
Friday	November 17
Saturday	November 18

Please check the bulletin and web bulletin for class information.

January

SUN	MON	TUE	WED	THU	FRI	SAT
	1 New Year's Day Holiday	2 Winter Recess	3	4	5	6 ⑬(11)(12)
7	8 Coming-of-Age Day Holiday	9 ⑭(13)(14) Monday class makeup day	10 Founder's Birthday Holiday	11 ⑬(11)(12)	12 ⑬(11)(12)	13 ⑭(13)(14)
14	15 ⑮(15)	16 ⑭(13)(14)	17 ⑮(15)	18 ⑭(13)(14)	19 ⑭(13)(14)	20 Additional class makeup day
21	22	23	24	25	26	27
Exam Period						
28	29	30	31			
Exam Period						

February

SUN	MON	TUE	WED	THU	FRI	SAT
				1 Spring Recess	2	3
4	5	6	7	8	9	10
11 National Foundation Day Holiday	12 Substitute Holiday	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

March

SUN	MON	TUE	WED	THU	FRI	SAT
				1 Spring Recess	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21 Vernal Equinox Day Holiday	22	23	24
25	26	27	28 Commencement Ceremony	29	30	31

January 20: Additional class makeup day

January 9: Monday class makeup day

Please check the bulletin and web bulletin for class information.

Class Timetable

Period	Standard	Examination period	
	Yagami and Hiyoshi	Yagami	Hiyoshi
1	9:00 - 10:30	9:00 - 10:30	9:30 - 10:30
2	10:45 - 12:15	10:45 - 12:15	10:50 - 11:50
3	13:00 - 14:30	13:00 - 14:30	12:50 - 13:50
4	14:45 - 16:15	14:45 - 16:15	14:10 - 15:10
5	16:30 - 18:00	16:30 - 18:00	15:30 - 16:30
6	18:10 - 19:40	18:10 - 19:40	16:50 - 17:50

2017 Academic Calendar

Spring Semester (from April 1 to September 21)	
Entrance ceremony	April 4 (Tue)
Guidance (except for new IGP students)	April 4 (Tue)
Guidance for new IGP students	April 5 (Wed)
Start of classes	April 7 (Fri)
Course registration period	April 11 (Tue, 13:00) – 14 (Fri, 10:00)
Keio Foundation Day	April 23 (Sun)
Annual health checkup	Late April
Course registration amendment period (applicable students only)	May 8 (Mon, 10:00)- 9 (Tue, 16:45)
Course cancellation period	May 17 (Wed, 10:00) – 18 (Thu, 16:45)
Deadline for submitting temporary leave of absence for spring semester	May 31 (Wed)
Final exam for the first half of semester (courses on a quarter system only)	June 2 (Fri) & 5 (Mon)
Start of classes held in the second half of semester (courses on a quarter system only)	May 29 (Mon)
Faculty of Science and Technology Foundation Day	June 17 (Sat) *Class day
Notice of grades for the first half of semester (courses on a quarter system only)	June 20 (Tue)
Course cancellation period (courses on a quarter system held in the second half of semester only)	June 22 (Thu, 10:00) – 23 (Fri, 16:45)
Marine Day	July 17 (Mon) *Class day
Additional class day	July 18 (Tue)
Final examination period	July 22 (Sat) – 31 (Mon)
Summer recess	August 1 (Tue) – September 21 (Thu)
Notice of semester grades	September 5 (Tue)
Announcement of master's award	September 5 (Tue)
Commencement ceremony	September 14 (Thu)

Fall Semester (from September 22 to March 31)	
Entrance ceremony	September 15 (Fri)
Guidance for new students	September 20 (Wed)
Start of classes	September 22 (Fri)
Autumnal Equinox Day	September 23 (Sat) *Class day
Course registration period	September 26 (Tue, 13:00) – 29 (Fri, 10:00)
Yagami campus festival	October 7 (Sat) – 8 (Sun)
Course registration amendment period (applicable students only)	Early October
Course cancellation period	October 25 (Wed, 10:00) – 26 (Thu, 16:45)
Culture Day	November 3 (Fri) *Additional class day
Final exam for the first half of semester (courses on a quarter system only)	November 11 (Sat) & 21 (Tue)
Start of classes held in the second half of semester (courses on a quarter system only)	November 14 (Tue)
Mita Festival	November 23 (Thu) – 25 (Sat) *No class
Deadline for submitting temporary leave of absence for fall semester	November 30 (Thu)
Notice of grades for the first half of semester (courses on a quarter system only)	December 5 (Tue)
Course cancellation period (courses on a quarter system held in the second half of semester only)	December 11 (Mon, 10:00) – December 12 (Tue, 16:45)
Emperor's Birthday	December 23 (Sat) *Class day
Winter recess	December 28 (Thu) – January 5 (Fri)
Makeup day for Monday classes	January 9 (Tue) *Tuesday classes are cancelled
Yukichi Fukuzawa (founder) 's Birthday	January 10 (Wed) *School holiday
Additional class day	January 20 (Sat)
Final examination period	January 22 (Mon) – January 31 (Wed)
Anniversary of Yukichi Fukuzawa's death	February 3 (Sat)
Notice of semester grades	March 9 (Fri)
Announcement of master's award	March 9 (Fri)
Commencement ceremony	March 28 (Wed)

Offices and Facilities

Office of Student Services (1st Floor, Building 25)

Academic Services

Services

Curriculum, Course registration, Grades, Classes, Examinations, Reports, Internship, Certificates, Advancement, Graduation

Office Hours

Regular Hours: Weekdays: 8:45 – 16:45
During Semester break (no classes or exams): Weekdays: 8:45 – 11:30, 12:30 – 16:45
Email: kym-yagami@adst.keio.ac.jp

International

Services

Scholarship programs, student exchange programs, double degree programs, assistance for international students in both their academic and daily lives

Office Hours

Regular Hours: Weekdays: 8:45 – 16:45
During Semester break (no classes or exams): Weekdays: 8:45 – 11:30, 12:30 – 16:45
URL: <http://www.st.keio.ac.jp/contents/ic/e/index.html>
Email: ic-yagami@adst.keio.ac.jp

Student Life, Career Services

Services

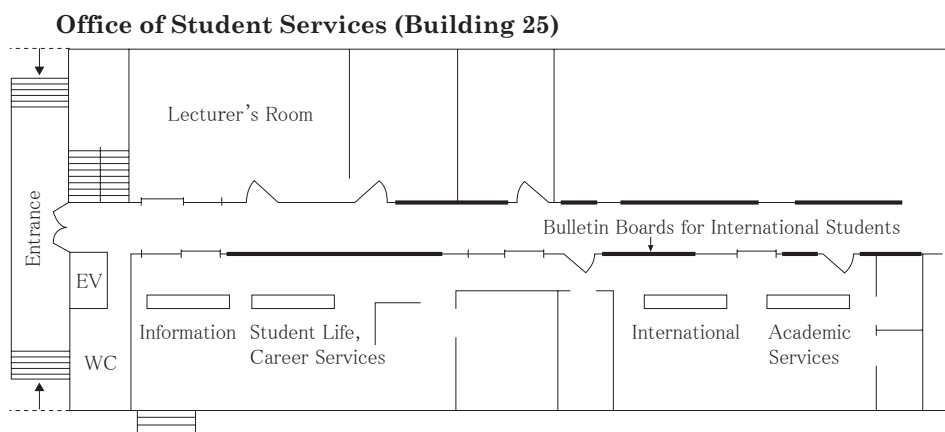
Scholarship programs, student health insurance, personal accident insurance, extra-curricular activities, career services

Office Hours

Regular Hours: Weekdays: 8:45 – 16:45
During Semester break (no classes or exams): Weekdays: 8:45 – 11:30, 12:30 – 16:45
Email: gakusei-c.yagami@adst.keio.ac.jp

Bulletin Boards

All important communications to international students will be posted on the bulletin boards in front of the Office of Students Services and on the internet at the “For Students” website, or Academic Affairs Web System. It is your responsibility to check these bulletin boards and websites regularly.



Media Center (Matsushita Memorial Library) (Basement and 1st Floor, Building 15)

Office Hours

Regular Hours: Weekdays: 8:45 – 21:30

Saturdays: 8:45 – 20:00

During Semester break (no classes or exams): Weekdays: 8:45 – 19:00

Saturdays: 8:45 – 18:00

URL: <http://eng.scitech.lib.keio.ac.jp/>

Email: riko-info@lib.keio.ac.jp

Information Technology Center (ITC) (First basement Floor, West Wing, Building 14)

ITC is located on each campus to provide computing and communication infrastructure, services, support, and innovation of Keio University's educational and research programs.

Office Hours

Regular Hours: Weekdays: 9:00 – 11:30, 12:30 – 16:00

URL: http://www.st.itc.keio.ac.jp/en/top_st.html

Email: st-itc@itc.keio.ac.jp

Student Lounge (Room 201, 2nd Floor, Building 12)

There is a student lounge which can be used freely by international students.

Hours: Monday - Saturday: 8:30 – 20:00

Student ID Card, Notifications and Certificates

1. Student ID Card

Your Student ID Card certifies that you are a student of Keio University. Please be sure to carry it with you at all times as it is required in a variety of situations.

The registration sticker is renewed annually in April or in September. A new registration sticker will be sent to the student's address at the end of the semester.

If the Student ID Card and/or registration sticker becomes lost, soiled, or damaged, apply for re-issuance at the Office of Student Services. It costs 2,000yen per issuance.

If you find your old student ID card after a new one has been reissued, you must return it to the Office of Student Services.

2. Notifications and Certificates

(1) Notification of Change of Address of Student/Guarantor

Notification of change of address must be promptly completed if there are any changes to the student or guarantor's address.

For a change of address/phone number of the student:

Go to the "Update and Confirm Your Address" section on the Academic Affairs Web System to complete notification procedures.

In the case of changes to the student's address, the registration sticker on the back of the Student ID Card also needs to be updated. Bring your Student ID Card to the Office of Student Services after your new information has been registered on the Academic Affairs Web System.

For a change of address/phone number of the guarantor:

Bring your Student ID Card to the Office of Student Services and complete necessary procedures. Submission of the guarantor's Certificate of Residence is also required.

(2) Notification of Off-campus Research Activities

Any student wishing to engage in off-campus research activities or conferences must submit the "Off-campus Research Activity Report Form" to the Office of Student Services. The report form is available at the following website: <http://www.st.keio.ac.jp/english/students/academic.html>

(3) Certificates

Students can purchase most certificates from any of the certificate issuing machines in Keio University. Use of the certificate issuing machines requires a student ID card and a four digit Personal Identification Number (PIN). Students can confirm their PIN on the Academic Affairs Web System.

If you require a certificate in a sealed envelope, make a request at the Information Counter at Office of Student Services. Please note that certificates issued from a certificate issuing machine cannot be later officially sealed in an envelope.

① Certificate Issuing Machine at Yagami campus

Building 14 "Sousoukan" First floor Student communication room	8:45 – 20:00 (Monday to Saturday) - No service on Saturdays when there are no classes and examinations - No service on Sundays, National holidays and University administration holidays
--	--

② List of Certificates

Certificate	Language	Fee (per copy)	Place of issue	Issued	Remarks
Certificate of Enrollment	Japanese	200 yen	Certificate Issuing Machine	Same day	
	English				
Transcript of Academic Record	Japanese	200 yen	Certificate Issuing Machine	Same day	
	English				
Certificate of Expected Graduation (Master's program)	Japanese	200 yen	Certificate Issuing Machine	Same day	Issued for second year master's students only.
	English				
Certificate of Course Registration	Japanese	200 yen	Certificate Issuing Machine	Same day	
	English	200 yen	Information Counter		
Certificate of Annual Health Checkup	Japanese	200 yen	Certificate Issuing Machine	Same day	
	English	Contact the Health Center (Tel 045-566-1456)			
Student Travel Fare Discount Certificate (Gakuwari)	Japanese	Free	Certificate Issuing Machine	Same day	Cannot be issued to students who have not taken the annual health checkup.

* Student Travel Fare Discount Certificate are valid for three months from the day of issue (they become invalid if the student is no longer enrolled in the University). Students should only apply for the number of certificates they need.

* Certificates will not be issued if your tuition fee for the previous semester has not yet been paid.

Course Registration, Classes and Grades

1. Important notes for course registration

- (1) You must receive directions and get approval from your academic advisor for course planning and complete course registration during the designated period.
- (2) You are required to register for all courses you will take each semester.
- (3) You cannot register for courses held during the same period on the same day.
- (4) You cannot register for courses you have already passed.
- (5) Grades are given for the registered courses.
- (6) After the course registration period closes, courses cannot be added or deleted for any reason whatsoever.
- (7) If you register for courses offered at other graduate schools or faculties, you must get approval of the faculty member in charge before registration. The designated course registration form is provided at the Academic Services.

2. Course registration Procedures

- (1) Referring to the syllabus and timetable, select courses to register.
Syllabus search: <https://gslbs.adst.keio.ac.jp/>
- (2) View “Course List for International Graduate Program” to confirm courses conducted in English
- (3) Go to the “Course Registration” section of the Academic Affairs Web System to register for courses (URL: http://www.gakuji.keio.ac.jp/web_system.html).
Open the course registration screen by selecting [Register for Courses] in the menu.
When the log-in screen is displayed, enter your student ID number and your password.
Your initial password is indicated on your student ID card case. If you have not changed the initial password, it will be printed at the top right of the grade report that are delivered at the end of each semester. If you have forgotten your password, go to the Office of Student Services with your student ID card to reset your password. Be sure to carefully read the User Manual for Course Registration before registering courses:http://www.gakuji.keio.ac.jp/course_reg_manual_e.html
- (4) Registration method differs depending on courses. When you select a course via registration number or from timetable, normally, the field for courses will be [Column A] (Normal). But for some courses, you need to change it to one of the Column B options from the drop-down list.

Please confirm the table below and select the appropriate field.

Course	Field (for students enrolled in or earlier 2015)	Field (for students enrolled in or after 2016)
Specialized courses offered by the Graduate School of Science and Technology	Colum A	Colum A
General courses offered by the Graduate School of Science and Technology	Colum A	Colum A
Independent Study	Colum A	Colum A
Graduate Research	Colum A	Colum A
Free elective course (including Japanese)	Colum B 49	Colum B 90

- (5) After registering a course. “Pending” will be indicated in the Status column if there is any error. When you have confirmed that “Registration Complete” is indicated in the Status column for all courses, save the page by printing it. Get your research advisor’s signature on it, then submit the form to the box specially prepared at the Office of Student Services.
- (6) After the course registration period ends, you must compare the Course Registration Confirmation screen on the Academic Affairs Web System with your own registration printout in order to check for any discrepancies. If the contents do not match, or if you receive a Course Registration Confirmation Sheet by postal mail, you should amend errors at the Academic Services during the course registration amendment period (amendments cannot be made online). If course registration has been completed correctly, you will not receive a Course Registration Confirmation Sheet.

If a student does not complete the amendment procedure within the course registration amendment period, the university will accept no responsibility whatsoever for any disadvantages resulting from carelessness on the part of student in confirming registration details. All details are deemed to have been checked and confirmed as being correct after the course registration amendment period has passed.

3. Course Cancellation System

Except for courses indicated below, registered courses for a particular semester may be cancelled online in the designated cancellation period if you find that the course content is not what you expected, realize that you don’t have enough knowledge to follow the classes, or just want to decrease the number of courses you have registered. Grades will not be given for cancelled courses. Furthermore, additional courses may not be registered.

<Cancellation Period>

Year-long courses, Spring semester courses on a semester system, first half of spring semester courses on a quarter system	May 17 (Wed) 10:00 – May 18 (Thu) 16:45
Second-half of spring semester courses on a quarter system	June 22 (Thu) 10:00 – June 23 (Fri) 16:45
Fall semester courses on a semester system, first-half of fall semester courses on a quarter system	October 25 (Wed) 10:00 – October 26 (Thu) 16:45
Second-half of fall semester courses on a quarter system	December 11 (Mon) 10:00 – December 12 (Tue) 16:45

*Intensive courses held during the summer recess may be cancelled from the next day of the course registration is confirmed to the next day of the course begins.

Courses which may not be cancelled

<ul style="list-style-type: none"> - Mandatory courses (Independent Study, Graduate Research 1, Graduate Research 2) - Limited-enrollment courses decided by lottery - Limited-enrollment courses decided by course instructor
To see which courses at other graduate schools cannot be cancelled, confirm the each school.

4. Classes in Emergency Situations

Decisions concerning the cancellation of classes in the event of a Tokai Earthquake Advisory issued by the Japanese government or the Meteorological Agency, public transportation stoppages due to a natural disaster or large-scale

accident, or any other emergency are handled as described below.

(1) In the event of a Tokai Earthquake Advisory

If a major earthquake is predicted for the Tokyo Metropolitan area and Tokai region, and the Japanese government or Meteorological Agency issues a Tokai Earthquake Advisory, the University will close immediately. If an earthquake does not occur and the advisory lifted, information concerning the University will be communicated through the Keio websites.

(2) In the event of public transportation stoppages and other emergencies

In the event of a natural disaster such as a typhoon, heavy rain, heavy snow or earthquake, public transportation stoppages resulting from a major accident or other cause, and other emergencies in which it is necessary to cancel classes, information will be communicated through the Keio websites.

Keio students website: <http://www.gakuji.keio.ac.jp/en/>

<Other precautions>

In the event that an emergency occurs after classes have begun for the day, the University will deal with the situation by canceling classes or sending students home early. In such cases, be sure to follow the instructions provided by the University.

5. Classes on Waseda-Keio Baseball Game Days

Each year, Waseda-Keio baseball games are held over the weekend in late May to early June and late October to early November. In the event that a game takes place on weekdays, classes for the Faculty of Science and Technology will be cancelled from the second period so that students can support the Keio University team. However, classes offered by the Graduate School of Science and Technology will be conducted as usual. For classes offered by other faculties/graduate schools held at other campuses, please follow the direction of the corresponding campus.

Information regarding classes will be posted on the Jukusei (Keio students) website after 9 am on the day of baseball game.

<http://www.gakuji.keio.ac.jp/en>

6. Grades

(1) Grading System

Academic grades are shown as S, A, B, C or D. S, A, B and C are passing grade; D is a failing grade. For certain courses grades are given as P and F representing “pass” and “failure”, respectively. Furthermore, a G (approval) grade may be given for courses for which credits are transferred from other university.

From the Academic Year 2017, “D (fail)” will be given to courses which will be dropped without taking the final exam. “★ (exam not taken)” will be disused.

(2) GPA (Grade Point Average) *applicable for those admitted in or after Academic Year 2017

GPA is a numeral value used to show a student’s academic grades. The grade record of each course studied is converted to a GP (Grade Point), and the average is calculated. Please refer to the GAP calculation method below.

GP (Grade Point) S:4.0 A:3.0 B:2.0 C:1.0 D:0.0

$$\frac{\text{Sum of (Grade Points} \times \text{Number of course credits)}}{\text{Total number of credits for courses registered}}$$

Courses with grades of P and G, and free elective courses are not to be included.

There are two types of GPA, “semester GPA” for the current semester, and “cumulative GPA” for the entire period of enrollment. For students enrolling in Academic Year 2017 or after, semester GPA and cumulative GPA will be shown on the Grade Reports, and cumulative GPA will be shown on the Transcript of Academic Record.

(3) Notification of Grades

A Grade Report will be sent out to your guarantor (or to you if your guarantor residing abroad) by postal mail in September for the spring semester and March for the fall semester. Be aware that Grade Reports will not be reissued for any reason whatsoever. You can view your own academic record by logging into Keio.jp.

Temporary Leave of Absence, Withdrawal from University

1. Temporary Leave of Absence

Students who anticipate a long absence due to illness or other unavoidable reasons can take a temporary leave of absence. To request permission for a temporary leave of absence, students must confer with his/her academic advisor and a vice academic coordinator and submit the completed designated application form to the Office of Student Services (Academic Services). For illness or injury, a medical certificate issued by the physician is required. The semester in which you take a leave of absence is not counted towards the duration of enrollment required for advancement to the next year and graduation.

Application for a leave of absence is on a semester or full academic year basis, and if the leave of absence continues to the next semester, you must apply again.

When you are returning to your studies after a temporary leave of absence, you are required to submit the Notification of Returning to Study form immediately. If your temporary leave of absence was due to illness or injury, you must also submit a letter from your physician certifying that you are fit to resume your studies.

For academic fees during a temporary leave of absence, please contact the Academic Services.

	Spring Semester	Full Year	Fall Semester
Period of temporary leave of absence	April 1 to September 21	April 1 to March 31	September 22 to March 31
Deadline for submitting temporary leave of absence	Wednesday, May 31	Thursday, November 30	

2. Withdrawal from University

To request permission for withdrawal from the University, students must confer with his/her academic advisor and a vice academic coordinator and submit the completed designated application form to the Office of Student Services (Academic Services).

Examinations and Papers

1. Final Examinations

Final examinations are held at the end of each half-semester or semester depending on the system the course follows. Check the class schedule on page 4-7.

The timetable of final examination may differ from the normal class schedule. Please be sure to confirm the examination timetable which will be posted on the bulletin board of the Office of Student Services.

<Notes on final examinations>

- (1) Please be sure to bring your student ID card. If you forget to bring it on the day of an examination, you must obtain a temporary ID card from the Office of Student Services. (This temporary ID card permits you to enter all campuses and libraries on the date of issuance.)
- (2) Under no circumstances will students without a Student ID Card or temporary ID card be permitted to enter an examination room.
- (3) After the examination starts, only within 20 minutes late arrivals will be allowed and can enter the room.
- (4) Examinations will not be extended for any student arriving late as a result of administrative procedures required in order to obtain a temporary ID card.
- (5) Any fraud related to examinations will be dealt with severely in the manner set forth by the University.

2. Makeup Examinations

Makeup examinations are held for students who are unable to take final examinations due to illness or other unavoidable reasons. Notification will be posted on the bulletin board regarding application period and procedures for makeup examinations. The fee for makeup examination is 2,000 yen per course.

<Reasons for which applications will be accepted>

- (1) Conflicts: a final examination for a course being taken at another campus is scheduled to take place at the same time (you should give priority to the examination at the other campus and then apply to take a makeup examination for the Yagami course. An examination fee is not required in this case.)
- (2) Illness or injury (medical certificate indicating treatment on the day of the original examination is required.)
- (3) Delay in public transport services (delay certificate is required. An examination fee is not required.)
- (4) Funeral of a blood relative within the third degree of kinship (letter of appreciation of chief mourner or a statement of being absent written by the guarantor is required.)
- (5) Any other factor deemed unavoidable by an academic advisor

3. Term Papers

A term paper may be assigned at your class instead of a final exam. Please submit your term paper strictly according to instructions below.

- (1) Your term paper must be submitted to the designated place on the designated date. Please check the information on the bulletin board. Since there are no makeup options for papers, make sure you submit your paper by the stated deadline.
- (2) If you submit your paper to the Office of Student Services, attach a yellow term paper submission form to your paper. The submission form is available at the information counter at the Office of Student Services.
- (3) Once you submit your paper, no alterations or corrections is permitted even during the submission period.
- (4) Any fraud related to papers will be dealt with severely in the manner set forth by the University.

1. Jukusei (Keio students) website

URL: <http://www.gakuji.keio.ac.jp/en/>

Overview: This portal site provides various types of information for Keio University students. The latest notice and links to various websites can be found here.

Main Services Provided:

- Classes/Examinations
Class timetables, syllabus search, announcement of examination schedule
- Student Life/Placement and Career Services
Office service guide, information about events and scholarships

2. keio.jp

URL: <http://keio.jp/>

ID/password: Keio ID/password

Overview: This website provides an integrated menu of various services offered by the Keio Single Sign-On system.

Main Services Provided:

- Keio Mail
- Keio University Education Support System
Search course summaries, syllabi, class timetable, and class cancellation and makeup class information
- Class support
Browsing of class materials of registered coursers, submission of course assignments
- Academic Affairs Web System (see below)
- Online access to academic records
- Notification of results of annual health checkup
- Placement and Career Services System

3. Academic Affairs (Gakuji) Web System

When you login to keio.jp, you can go to the Academic Affairs Web System

Overview: This system is used for registering courses and confirming information about your currently registered courses including class cancellation and makeup class information.

Main Services Provided

- Course registration
With this system, you can select courses based on the timetable or course registration numbers, and register them. You can add, change, or delete courses as many times as necessary during the course registration period.
- Confirmation of registered courses
The system displays the list of courses that you registered. Make sure to confirm that the courses you registered are correctly registered during the course registration confirmation period.
- Information on cancelled/makeup/free-scheduled classes
You are able to check information on class cancellations and makeup/free-scheduled classes for courses you are enrolled in.
- Update and confirm your address
Students are able to check their own and their guarantors' addresses and contact information. You can also complete an online application to change your address or contact details.

- Notification from the Yagami Office

When you receive a notification or are being called for by the Yagami Office, a message will be displayed at the upper part of the screen upon logging in.

- Confirmation of your student ID PIN

Your student ID PIN (four digits) which is required for the certificate issuing machines will continuously displayed on the screen upon logging in.

Courses for International Graduate Programs on Advanced Science and Technology

If international students of Graduate School of Science and Technology take these courses, the lectures will be conducted in English.

Sub School	Subject	Semester	Credit	Professor
General Course	SCIENCE, TECHNOLOGY AND CULTURE	Fall	2	INOUE, KYOKO
	TECHNICAL COMMUNICATION 1	Spring	2	NUMAO, KEI
	TECHNICAL COMMUNICATION 1			INOUE, KYOKO
	TECHNICAL COMMUNICATION 2	Fall	2	IKEDA, MAYUMI
	TECHNICAL COMMUNICATION 2			INOUE, KYOKO
MACROECONOMIC DEVELOPMENTS AND ECONOMIC POLICY IN JAPAN	Fall	2	SAITO, JUN	
Fundamental Science and Technology	INTERNSHIP	Spring	2	HATAYAMA, AKIYOSHI
		Fall		
	CHEMISTRY AND DAILY LIFE	Fall	2	SHING, TONY KUNG MING
	PRACTICAL PRESENTATION IN CHEMISTRY 1	Spring	2	Not offered in 2017
	PRACTICAL PRESENTATION IN CHEMISTRY 2	Fall	2	SHING, TONY KUNG MING
	TOPICS IN CARBOHYDRATE CHEMISTRY	Spring	2	Not offered in 2017
	SEMINAR ON MODERN ORGANIC CHEMISTRY 1	Spring	2	Not offered in 2017
	SEMINAR ON MODERN ORGANIC CHEMISTRY 2	Fall	2	SHING, TONY KUNG MING
	TOPICS IN ORGANOCATALYSIS	Fall	2	SHING, TONY KUNG MING
	ANALYTICAL METHODS IN APPLIED PHYSICS AND INFORMATICS	Spring	2	HONDA, SATOSHI
	SUPERCONDUCTIVITY AND SOLID STATE ENGINEERING	Spring	2	KAMIHARA, YOICHI
	PHYSICS AND MODELING OF SEMICONDUCTOR DEVICES	Fall	2	ITOH, KOHEI UCHIDA, KEN
	QUANTUM ELECTRONICS	Fall	2	HAYASE, JUNKO
	MATHEMATICAL ENGINEERING FOR QUANTUM MECHANICS	Spring	2	YAMAMOTO, NAOKI
	NATURAL PRODUCTS CHEMISTRY	Fall	2	Not offered in 2017
	CONTROL THEORY FOR BIOSYSTEM	Fall	2	Not offered in 2017
	SYSTEM BIOMECHANICS	Spring	2	Not offered in 2017
	INTELLIGENT MACHINE SYSTEM	Fall	2	MURAKAMI, TOSHIYUKI
	INFORMATION OPTICS AND OPTICAL MEASUREMENTS	Spring	2	OKADA, EIJI
	OPTICAL FUNCTIONAL MATERIALS	Spring	2	KOIKE, YASUHIRO
NON-LINEAR DYNAMICS IN CHEMICAL SYSTEM	Spring	2	ASAKURA, KOICHI	
Integrated Design Engineering	INTERNSHIP	Spring	2	AOYAMA, HIDEKI
		Fall		
	SPACE EXPLORATION ENGINEERING	Fall	2	ISHIGAMI, GENYA
	ULTRAPRECISION MACHINING AND METROLOGY	Spring	2	YAN, JIWANG
	MATHEMATICAL AND PHYSICAL METHODS IN FLUID DYNAMICS	Fall	2	SAWADA, TATSUO
	BIOMIMETIC MICRO/NANO ENGINEERING	Spring	2	ONOE, HIROAKI
	MECHANICAL INTERFACE DESIGN	Fall	2	MORITA, TOSHIO
	MEMS: DESIGN AND FABRICATION	Spring	2	MIKI, NORIHISA
	ADVANCED DESIGN AND PRODUCTION SYSTEM	Spring	2	AOYAMA, HIDEKI OYA, TETSUO
	ADVANCED CONTROL SYSTEMS DESIGN	Spring	2	OHMORI, HIROMITSU NAMERIKAWA, TORU
	SYSTEM BIOMECHANICS	Spring	2	Not offered in 2017
	INTELLIGENT MACHINE SYSTEM	Fall	2	MURAKAMI, TOSHIYUKI
	ADVANCED SYSTEM ELECTRONICS	Fall	2	KUBO, RYOGO
	ADVANCED SIGNAL PROCESSING	Spring	2	Not offered in 2017
	DIGITAL WIRELESS COMMUNICATIONS	Spring	2	SANADA, YUKITOSHI
	COMPREHENSIVE EXERCISE OF ELECTRONICS AND ELECTRICAL ENGINEERING	Spring	2	YUKAWA, MASAHIRO
	PHYSICS AND MODELING OF SEMICONDUCTOR DEVICES	Fall	2	ITOH, KOHEI UCHIDA, KEN
	OPTO-ELECTRONICS	Spring	2	KANNARI, FUMIHIKO
	INFORMATION OPTICS AND OPTICAL MEASUREMENTS	Spring	2	OKADA, EIJI
	OPTICAL CONTROL OF QUANTUM SYSTEMS	Spring	2	Not offered in 2017
	OPTICAL NETWORK SYSTEM	Fall	2	TSUDA, HIROYUKI
	PHOTONIC NANOSTRUCTURE	Spring	2	TANABE, TAKASUMI
	ORGANIC ELECTRONIC MATERIALS AND DEVICES	Fall	2	NODA, KEI
	LASER PROCESSING	Fall	2	TERAKAWA, MITSUHIRO
	CHEMICAL SENSORS / BIOSENSORS AND SENSING MATERIALS	Spring	2	CITTERIO, DANIEL
	FUNCTIONAL THIN FILM ENGINEERING	Spring	2	SHIRATORI, SEIMEI
	TECHNICAL ENGLISH FOR INTEGRATED DESIGN AND ENGINEERING	Spring	2	Not offered in 2017
	OPTICAL FUNCTIONAL MATERIALS	Spring	2	KOIKE, YASUHIRO
	NON-LINEAR DYNAMICS IN CHEMICAL SYSTEM	Spring	2	ASAKURA, KOICHI

Sub School	Subject	Semester	Credit	Professor
	INTRODUCTION TO COMPUTATIONAL SOLID MECHANICS	Spring	2	OGUNI, KENJI
	COMPUTER ARCHITECTURE	Spring	2	AMANO, HIDEHARU
	COMPUTER VISION	Spring	2	SAITO, HIDEO
	INTERNSHIP	Spring Fall	2	TAKADA, SHINGO
	INTRODUCTION TO COMPUTATIONAL SOLID MECHANICS	Spring	2	OGUNI, KENJI
	ANALYSIS OF ARCHITECTURAL FORM	Fall	2	ALMAZAN CABALLERO, JORGE
	ARCHITECTURAL AND BUILDING DESIGN STUDIO B	Spring	4	Not offered in 2017
	DYNAMICS IN ARCHITECTURAL ENGINEERING	Spring	2	Not offered in 2017
	PUBLIC SPACE AND COMMUNICATION	Fall	2	INOUE, KYOKO
	ADVANCED COURSE ON SUSTAINABLE ARCHITECTURE AND CITIES	Fall	2	Not offered in 2017
	THERMAL AND REACTIVE FLUID DYNAMICS	Spring	2	UEDA, TOSHIHISA
	NON-LINEAR DYNAMICS IN CHEMICAL SYSTEM	Spring	2	ASAKURA, KOICHI
	ADVANCED ACTUATOR ENGINEERING	Fall	2	TAKEMURA, KENJIRO
	COMPRESSIBLE FLUID DYNAMICS	Spring	2	MATSUO, AKIKO
	ADVANCED COURSE IN APPLIED AND COMPUTATIONAL MECHANICS 2	Fall	2	OGIHARA, NAOMICHI OBI, SHINNOSUKE TAKANO, NAOKI FUKAGATA, KOJI YASUOKA, KENJI TAKEMURA, KENJIRO ANDO, KEITA
	FUNDAMENTALS OF MULTIPHASE FLOW	Spring	2	ANDO, KEITA
	BIOMECHANICS AND CONTROL OF HUMAN MOVEMENTS	Fall	2	OGIHARA, NAOMICHI
	ADVANCED COURSE OF MOLECULAR DYNAMICS	Fall	2	YASUOKA, KENJI
	FINITE ELEMENT MODELING AND SIMULATION	Fall	2	TAKANO, NAOKI
	FUNDAMENTALS OF TURBULENCE AND ITS THEORY	Spring	2	FUKAGATA, KOJI
	INTRODUCTION TO TURBULENCE MODEL AND ITS APPLICATION	Fall	2	OBI, SHINNOSUKE
	AD HOC AND SENSOR NETWORK	Fall	2	OTSUKI, TOMOAKI
	ADVANCED COURSE OF INTERNET BACKBONE ARCHITECTURE	Spring	2	YAMANAKA, NAOAKI
	TOPICS IN COMPUTER OPERATING SYSTEMS	Spring	2	KONO, KENJI
	FORMAL PROGRAMMING LANGUAGE THEORY	Spring	2	TAKIMOTO, MUNEHIRO
	COMPUTER ARCHITECTURE	Spring	2	AMANO, HIDEHARU
	ADVANCED COURSE ON COMPUTER VISUALIZATION	Spring	2	FUJISHIRO, ISSEI
	COMPUTER SCIENCE: EXERCISES	Fall	2	TAKADA, SHINGO
	COMPUTER VISION	Spring	2	SAITO, HIDEO
	SYSTEMS PERFORMANCE EVALUATION	Fall	2	Not offered in 2017
	ADVANCED COURSE ON NATURAL LANGUAGE PROCESSING	Fall	2	OHARA, KYOKO SAITO, HIROAKI
	DESIGN OF PHYSICALLY GROUNDED COMMUNICATION SYSTEM	Spring	2	IMAI, MICHITA
	SOFTWARE ENGINEERING: DEVELOPMENT AND TESTING	Spring	2	TAKADA, SHINGO
	ADVANCED COURSE ON DIGITAL COMMUNICATION THEORY	Spring	2	SASASE, IWAO
	ADVANCED COURSE IN DATABASE SYSTEMS	Spring	2	TOYAMA, MOTOMICHI
	ADVANCED COURSE ON NETWORK ENGINEERING	Spring	2	TERAOKA, FUMIO
	ADVANCED COURSE ON NETWORK SERVICES	Fall	2	KANEKO, KUNITAKE
	MIXED REALITY	Spring	2	SUGIMOTO, MAKI
	DISTRIBUTED SYSTEMS	Fall	2	MATSUTANI, HIROKI
	MODELS FOR CONCURRENCY	Spring	2	YOSHIDA, NOBUKO
	MICROPROCESSOR ARCHITECTURE	Fall	2	YAMASAKI, NOBUYUKI
	ADVANCED COURSE ON APPLICATION OF EXPERIMENTAL DESIGN	Fall	2	YAMADA, SHU
	APPLIED STATISTICAL ANALYSIS	Fall	2	SUZUKI, HIDEO
	OPEN SYSTEMS MANAGEMENT: LECTURE AND EXERCISES	Fall	2	IMAI, JUNICHI SAKURAI, AKITO SUZUKI, HIDEO HIBIKI, NORIO MASUDA, YASUSHI MATSUKAWA, HIROAKI YAMAGUCHI, TAKAHIRA YAMADA, SHU
	OPERATIONS MANAGEMENT	Spring	2	MATSUKAWA, HIROAKI
	MODELING AND ANALYSIS OF STOCHASTIC SYSTEMS	Fall	2	MASUDA, YASUSHI
	ADVANCED FINANCIAL ENGINEERING I	Spring	2	IMAI, JUNICHI

Curriculum for International Students

The Graduate School of Science and Technology consists of 2 years of Master's program followed by 3 years of Ph.D. program. The school is divided into the following 3 sub-schools:

School of Fundamental Science and Technology

- Center for Mathematics
- Center for Physics
- Center for Molecular Chemistry
- Center for Applied Physics and Physico-Informatics
- Center for Chemical Biology
- Center for Biosciences and Informatics

School of Integrated Design Engineering

- Center for Multidisciplinary and Design Science
- Center for System Integration Engineering
- Center for Electronics and Electrical Engineering
- Center for Material Design Science

School of Science for Open and Environmental Systems

- Center for Space and Environment Design Engineering
- Center for Science of Environment and Energy
- Center for Applied and Computational Mechanics
- Center for Information and Computer Science
- Center for Open Systems Management

Every graduate student in the graduate school officially belongs to one of the three sub-schools listed above, and performs research under the guidance of academic advisor who belongs to one of the centers. Each center consists of faculty members and graduate students whose research interests match the field specified by the name of the center.

Courses and Requirements

The courses offered at the graduate school are divided into three categories; *General Courses*, *Specialized Courses*, *Special Study*. Regardless of their majors, students are free to take any of the *General Courses* and *Specialized Courses* to fulfill part of the 30 credits required for the master's degree.

The Ph.D. program will only consist of 6 required credits of *Graduate Research 2 (Special Study)*, in which the student will be offered research guidance and instructions for preparing academic dissertations to acquire a Ph.D. degree.

Most of the courses are offered based on a semester system consisting of spring (April-July) and fall (September-January) terms. However, some courses may be based on a quarter system or are offered in a short term intensive format.

General Courses (総合科目)

These courses aim to foster not only professionals in various fields of science and technology, but also future leaders who will continue to propose and bring about better relationships between science, technology and human society. Basically, each course is worth 2 credits.

Maximum number of *General Course* credits you can include in the completion requirement (total 30 credits) is 6 credits.

Courses are divided into the following three groups:

- 1) Courses related to life ethics and environmental law through which one reaffirms knowledge of science and technology acquired through social relationships.
- 2) Courses related to business administration which will be useful in future business practices.
- 3) Courses such as Technical Communication and Data Literacy which will improve research and communication skills required to be successful internationally.

Specialized Courses (専門科目)

These courses are designed to teach fundamentals of science and engineering in student's research field.

They help students establish a solid foundation as scientists and engineers, and gain an overview of the research topics, master the knowledge or methodology related to their specializations. Study programs will be set up according to instructions given by advisors. Courses include:

- 1) Basic subjects that must be mastered in student's field of study.
- 2) A specific research topic that is assigned by the advisor to improve student's understanding.
- 3) *Independent Study* (4 credits) that is a requirement for all first year master's program students.

Special Study (特別研究科目)

The program is designed to provide students with opportunities to perform individual research topic leading to the completion of their master's and Ph.D. theses.

All second year master's program students must register for *Graduate Research 1* (6 credits).

All Ph.D. students are required to register for *Graduate Research 2* (6 credits). The level of master's and Ph.D. theses is expected to be very high, and the contents should be presentable at internationally recognized scientific journals and meetings.

Requirements for Completion

1. Master's Program

(1) Required Credits

Compulsory		
Independent Study (課題研究科目)		4 credits
Graduate Research 1 (特別研究第1)		6 credits
Elective		
General Courses (総合科目)	Maximum number of credits you can count towards your degree requirement is 6.	20 credits
Specialized Courses (専門科目)	No upper limit for the number of credits.	
TOTAL		30 credits
Free Elective Courses (自由科目)	Credits for these courses cannot be counted towards your degree requirement (e.g., Japanese).	

Other requirements

- At least one academic year of study at the Master's program (standard duration in 2 years).
- Every student should enroll in *Independent Study* during the first year of the Master's program, and *Graduate Research 1* during the second year of the program.
- Students are required to complete at least 16 credits (including *Independent Study*) during the first year of the program in order to register for *Graduate Research 1*.
- Submission and approval of the master's thesis
- ※ Consult with your academic advisor if you need assistance selecting courses.
- ※ There are various levels of Japanese classes offered every Wednesday. However, please note that the credits for Japanese classes DO NOT count toward your degree requirement. For more details, please contact the Office of Student Services (International).

(2) Master's Thesis

An advisor for the *Independent Study* and *Graduate Research 1* must be chosen carefully for he/she will play an important role of advising on the courses to be taken and research to be performed. If necessary more than one advisor may share this responsibility.

A master's thesis based on the *Independent Study* and *Graduate Research 1* should be submitted to and approved by all members of the sub-school based on the following criteria:

- 1) academic knowledge in the field
- 2) scholastic ability to understand the latest and important progress in the field
- 3) capability to make contributions to society as a master's degree holder.

For those completing the master's program in March, final evaluation of the master's thesis will be given between late January and early February based on written thesis AND oral or other forms of presentations.

For those completing the program in September, the evaluation will be given in mid August.

(3) Types of Master's Degrees

Students may pursue studies leading to any of the following degrees.

The School of Fundamental Science and Technology: **Master of Science in Engineering** or **Master of Science**
The School of Integrated Design Engineering: **Master of Science in Engineering** or **Master of Science**
The School of Science for Open and Environmental Systems: **Master of Science in Engineering**

2. Ph.D. Program

(1) Required Credits

<i>Graduate Research 2</i> (特別研究第2)	6 credits
TOTAL	6 credits

Other requirements

- At least three academic years of study in the Ph.D. program
 - Approval of Ph.D. thesis and passing of the final evaluation
 - As an exception, student may complete the Ph.D. program in one to two and a half years (a total of three or more years combined with the time spent in the master's program) if he produces outstanding research results.
- ※ Student may choose to enroll in courses offered by the graduate school to further enrich the understanding of his/her research field.

Selecting an academic advisor

Upon admission to the Ph.D. program, advisor for *Graduate Research 2* must be chosen carefully for he/she will play an important role of advising on the courses to be taken and research to be performed. If necessary, more than one advisor may share this responsibility.

The Ph.D. program consists mainly of guidance from academic advisor on the preparation of a Ph.D. thesis and a discussion between the advisor and the student.

Publication of the research results

Students in the Ph.D. program is strongly urged to publish their research results. It is recommended that students submit their work to a professional publication or introduce the results at an international conference or major academic congress. The publication will be presented as academic achievement at the completion of the Ph.D. program.

Courses to be taken for the Ph.D. Graduate Research Course

Graduate Research 2 is the only required course for completion. However, students are encouraged to take various courses which will help gain related knowledge for the research activity.

Evaluation for a Ph.D. Degree

A successful completion of the Ph.D. program is based on the following procedures.

- (1) Establishment of an evaluation committee among the faculty members belonging to one of the three sub-schools to which the candidate belongs. External members from outside the school or university may be added to the committee if appropriate.
- (2) Evaluation of the Ph.D. thesis by the committee and open-to-public research presentation by the candidate.

- (3) A closed-door examination by the committee on the basic knowledge related to the candidate's field of research, and language skills.
- (4) A total and final evaluation of the candidate by all the members of the sub-school based on b) and c).

(2) Details and Standards of Ph.D. Degree Evaluation

Further evaluation and standards vary depending on the sub-schools. Please refer to the conditions for each schools.

School of Fundamental Science and Technology

(1) Nomination as a Ph.D. candidate

Each research advisor is responsible for the nomination of his students to the school as Ph.D. candidates when they are fully prepared to receive the degree. The advisor requests the school for the official permission to start the evaluation procedure.

(2) Submission of lists of research achievements

The main outcome of the dissertation is required to have been published or accepted for publication in major research journals by the end of final evaluation. Candidates are expected to submit:

- a) List of research presentations at international and domestic scientific meetings.
- b) List of publications including those that have been submitted but not accepted.
- c) CV describing the candidate's previous experience in research and teaching.

The candidates should follow instructions from their advisors when preparing above documents.

(3) Preliminary evaluation

Those students who plan to finish the Ph.D. program must undergo a preliminary review before filing an application for the degree. The Ph.D. thesis does not have to be completed for the preliminary evaluation to begin. The candidate's qualification as a Ph.D. is evaluated by all members of the sub-school and by external committee members of the candidate's thesis, based on the list of research achievements submitted. After passing the preliminary evaluation, the evaluation for a Ph.D. degree is officially initiated.

School of Integrated Design Engineering

- (1) The outcome of the candidate's Ph.D. research should contribute to the advancement of science, technology, and industrial development. The candidate must possess sufficient knowledge and understanding in his/her field of study, and be qualified to lead innovative research and development activities internationally.
- (2) A multiple number of publications in appropriate academic journals (including those that have been accepted for publication but not printed) based on the candidate's Ph.D. research is considered standard for the Ph.D. degree application.
- (3) Submission of research achievements
As a reference to determine whether the Ph.D. degree should be conferred, the following should be submitted with the application:
 - 1) Published articles (including those that have been accepted for publication but yet to be printed);
 - 2) Records of presentations at academic meetings and international conferences;
 - 3) Description of other research activities.

School of Science for Open and Environmental Systems

The criteria for determining the awarding of Ph.D. degree should be as follows.

- (1) candidate possesses sufficient knowledge and understands his/her field of study
- (2) candidate is capable of conducting highly sophisticated and intellectually productive engineering activities.
- (3) candidate is familiar with basic methodologies to carry out engineering tasks.

Since the Open and Environmental Systems Program aims to expand scientific and technological methodologies to various fields, flexibility to adapt oneself to a variety of fields are important standards to be evaluated in detail.

- (1) The Ph.D. thesis will be screened by the examination committee, chaired by student's advisor.
- (2) Upon preparing the student's research plan, the advisor will specify the criterion that will be used to evaluate his degree awarding.
- (3) The candidate shall report to the committee his research accomplishments, including papers published in research journals as well as publications in other formats in related fields. In certain cases, the candidate will be required to submit the following information, related to his Ph.D. research activities:
 - a) record of presentations given at international conferences and academic meetings
 - b) research experience

The student must consult with his/her advisor whether to include information concerning a) and b).

(3) Types of Ph.D. Degrees

Students may pursue studies leading to any of the following degrees.

The School of Fundamental Science and Technology: **Ph.D. in Engineering** or **Ph.D. in Science**

The School of Integrated Design Engineering: **Ph.D. in Engineering** or **Ph.D. in Science**

The School of Science for Open and Environmental Systems: **Ph.D. in Engineering**

In addition to above, the degree of **Doctor of Arts** may be conferred.

(4) Ph.D. Thesis Assignment

For details, please refer to the "Application Guide for the Ph.D. Degree" available from the following website.

http://www.gakuji.keio.ac.jp/yagami/hakaseronbun_rikouken.html

[Keio University Science and Technology website]-[For Students]-[Academic Service]-[Ph.D. Degree Application]

Master's Thesis Assignment

All students enrolling in the master's program must submit a thesis for master's degree at the end of the program. This is the final assignment of *Graduate Research I* and with the approval and presentation of the thesis, the successful candidate will be awarded a master's degree.

Related documents and sample format are available at the Keio University Science and Technology website:

http://www.gakuji.keio.ac.jp/en/yagami/syuusironbun_rikouken.html

1. Submission Procedures

Please follow your supervisor's instruction and submit materials below during the submission period specified.

1) Thesis Title

Please submit your thesis title by logging into "Keio University Class Support" via "Keio.jp".

Submission Deadline: September 2017 completion: 4:00pm, Monday, June 26, 2017

March 2018 completion: 4:00pm, Friday, November 24, 2017

2) Paper version thesis

The thesis must be arranged in the following order in an A4-size paper folder and submit with the *Thesis Copyright Agreement Approval Form* (your advisor's signature is required).

1.	A Spine	: stick on the folder's spine (see sample format)
2.	B Front cover	: stick on the folder (see sample format*)
3.	C Title page	: file in the folder (see sample format*)
4.	D Abstract	: about 400 words (see sample format)
5.	Table of contents	
6.	Text	* B Front cover and C Title page are the same format

Submission Deadline:

September 2017 completion: 4:45pm, Friday, August 4, 2017 to the Academic Services

March 2018 completion: 4:00pm, Monday, February 5, 2018 to Discussion Space 33, 34 (3F, 14th Bldg.)

3) PDF version thesis

Create a PDF file of your thesis and upload the file by logging into "Keio University Class Support" via "Keio.jp".

Submission Deadline: September 2017 completion: 4:00pm, Thursday, August 31, 2017

March 2018 completion: 4:00pm, Wednesday, February 28, 2018

2. Corrections of the Thesis Title

If there are some typographical errors or omissions in your thesis title which need correction, please correct the thesis title through "Keio University Class Support".

Deadline: September 2017 completion: August 20, 2017

March 2018 completion: February 13, 2018

NOTE

1. The thesis title must be EXACTLY identical with the one declared via "Keio.jp".
2. Students must present their thesis in person.

Sample format for master's thesis in academic year 2017

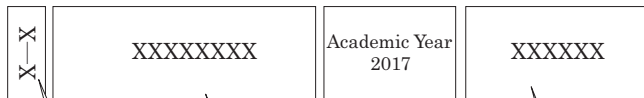
A Spine

Fill out the items No. 1 to 8.

1. Course No. Please refer to the course numbers listed below.

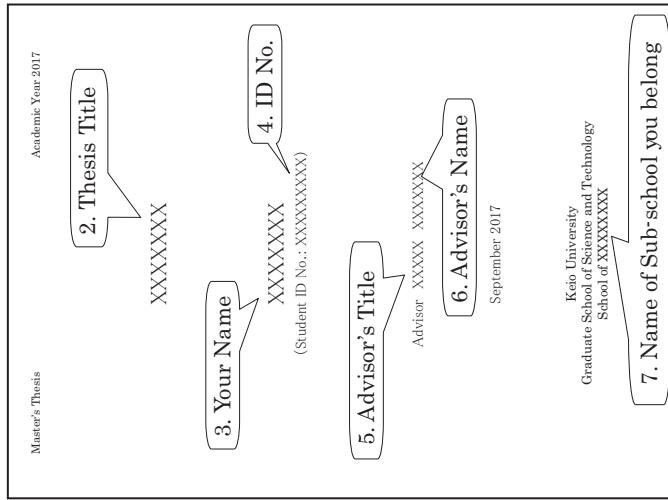
2. Thesis Title

3. Your Name

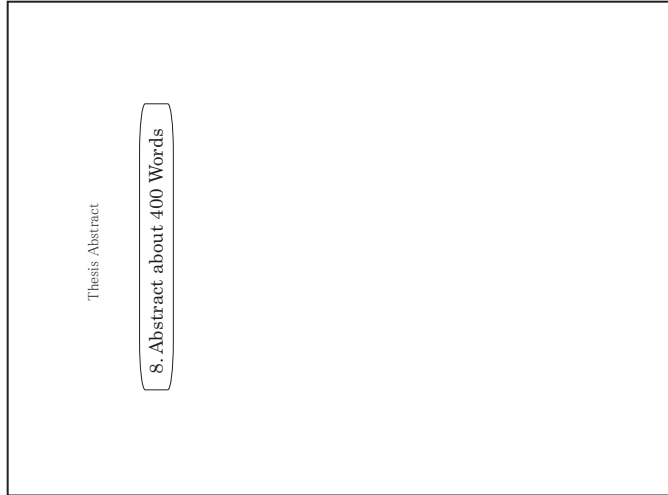


B Front cover (stick on the folder)

C Title page (same as the format of front cover)



D Thesis Abstract (free-form)



Graduate Research 1 Course Numbers

Sub school: Fundamental Science and Technology	Sub school: Integrated Design Engineering	Sub school: Science for Open and Environmental Systems
1-1 Mathematics	2-1 Multidisciplinary and Design Science	3-1 Space and Environment Design Engineering
1-2 Physics	2-2 System Integration Engineering	3-2 Science of Environment and Energy
1-3 Molecular Chemistry	2-3 Electronics and Electrical Engineering	3-3 Applied and Computational Mechanics
1-4 Applied Physics and Physico-Informatics	2-4 Material Design Science	3-4 Information and Computer Science
1-5 Chemical Biology		3-5 Open Systems Management
1-6 Biosciences and Informatics		

*File the items in A4-size paper folder in order of **C**, **D**, **B**, Table of contents and Body of text.

*Please make sure to see the website for details:

http://www.gakui.keio.ac.jp/en/yagami/syuusironbun_rikouken.html

[Keio University Science and Technology website]-[For Student]-[Academic Services]-[Master's Thesis Assignment]

*Any items such as names of program and laboratory, date of submission and Keio logo should not be mentioned in **A**, **B**, **C** and **D**.

Yagami Campus

(Graduate School of Science and Technology)

3-14-1 Hiyoshi, Kohoku-ku Yokohama-shi, Kanagawa 223-8522, Japan

<http://www.keio.ac.jp/index.html>