

College of Science and Engineering
科學及工程學院

Department of Physics
物理學系

Bachelor of Science in Applied Physics
理學士 (應用物理學)



Student Handbook

2017-2018

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1. Aims of Major

This major is to provide Bachelor-level education to students with diverse backgrounds, to prepare them to pursue a career in areas such as environmental physics, optics, materials technology, and biomedical physics in the industrial, commercial, governmental or educational sectors. On completion of the major, graduates will be able to integrate knowledge learned in the major to support in at least an original discovery or creative design relevant to applied physics.

Intended Learning Outcomes of Major (MILOs)

Upon successful completion of this major, students should be able to:

No.	MILOs	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
		A1	A2	A3
1.	Apply knowledge of mathematics, physics, and engineering appropriate to the degree in Physics (with the focus on one or more of the areas in applied physics: environmental physics, optics, materials technology, and biomedical physics). This includes: (a) to design a component, a process or a system to meet desired needs within realistic constraints. (b) to identify, formulate, and solve physics and engineering problems.	✓	✓	
2.	Design and conduct experiments, as well as analyze, interpret and present results.		✓	✓
3.	Use the techniques, skills, and modern Physics and engineering tools including computer/IT tools necessary for practices appropriate to the degree in Physics along with an understanding of their processes and limitations.		✓	✓
4.	Appreciate the impact of Physics and engineering applications in a global and societal context, especially the importance of health, safety and environmental considerations to both workers and the general public.	✓	✓	
5.	Appreciate professional and ethical responsibility.			
6.	Appreciate basic laws and principles of physics and to use this knowledge to explain everyday life examples and phenomena, to explain science to people not in the science and engineering discipline, and to educate the public in physics.	✓		
7.	Work in a multidisciplinary team.		✓	
8.	Communicate effectively.		✓	
9.	Recognize the need for, and to engage in life-long learning, including the ability to stay abreast of contemporary issues.	✓	✓	
10.	Create an original discovery or design that are motivated from the major of study.	✓	✓	✓

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments

Demonstrate accomplishments of discovery/innovation/creativity through producing/constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

2. Degree Requirements

2.1. Minimum Number of Credit Units Required for the Award

Degree Requirements	Normative 4-year Degree	Advanced Standing I	Advanced Standing II (Senior-year Entry)
Gateway Education requirement	30 credit units	21 credit units	12 credit units
College/School requirement	6 credit units	waived	waived
Major requirement	66/65 [^] credit units (Core: 45/48; 50/53 [^] Elective: 21/18; 15/12 [^])	66 credit units (Core: 45/48 Elective: 21/18)	60 credit units (Core: 39/42 Elective: 21/18)
Free electives / Minor (if applicable)	18/19 [^] credit units	3 credit units	0 credit unit
Minimum number of credit units required for the award	120 credit units	90 credit units	72 credit units

[^] For students who plan to pursue the Joint Bachelor's Degree Program between City University of Hong Kong and Columbia University

2.2. Gateway Education Requirement

(The catalogue term of the Gateway Education requirement that students will follow will be the same as their admission term.)

For Normative 4-year students

Curriculum Catalogue Term	Semester A 2016/17
	Normative 4-year Degree
<u>University requirements</u>	
English	
• GE1401 University English	3 credit units
• Discipline-specific English	3 credit units
GE1501 Chinese Civilisation – History and Philosophy	3 credit units
<u>Distributional requirements</u>	12 credit units
Area 1: Arts and Humanities	(At least one course from each of the three areas)
Area 2: Study of Societies, Social and Business Organisations	
Area 3: Science and Technology	
<u>College/School-specified courses</u> [^]	9 credit units
Total	30 credit units

^ College/School-specified courses for fulfilling the Gateway Education requirement

Course Code	Course Title	Level	Credit Units	Remarks
Normative 4-year Degree				
MA1200/ MA1300	Calculus and Basic Linear Algebra I/ Enhanced Calculus and Linear Algebra I	B1	3	
MA1201/ MA1301	Calculus and Basic Linear Algebra II/ Enhanced Calculus and Linear Algebra II	B1	3	
CS1102/ CS1302	Introduction to Computer Studies/ Introduction to Computer Programming	B1	3	

For Advanced Standing I and II Students

Curriculum Catalogue Term	Semester A 2017/18	
	Advanced Standing I (Note 1)	Advanced Standing II (Senior-year Entry) (Note 2)
<u>University requirements</u>		
English		
• GE1401 University English	3 credit units	Not a compulsory requirement
• Discipline-specific English	3 credit units	3 credit units
GE1501 Chinese Civilisation – History and Philosophy	3 credit units	Not a compulsory requirement
<u>Distributional requirements</u> Area 1: Arts and Humanities Area 2: Study of Societies, Social and Business Organisations Area 3: Science and Technology	6 credit units <i>(From two different areas)</i>	3 credit units
<u>College/School-specified courses ^</u>	6 credit units	6 credit units
Total	21 credit units	12 credit units

Note 1: For students with recognized Advanced Level Examination or equivalent qualifications.

Note 2: For Associate Degree/Higher Diploma graduates admitted to the senior year.

^ College/School-specified courses for fulfilling the Gateway Education requirement

Advanced Standing I				
Major in Applied Physics				
CS1102/ CS1302	Introduction to Computer Studies/ Introduction to Computer Programming	B1	3	Students taking Major core <i>AP3114</i> <i>Computational Methods</i> <i>for Physicist and</i> <i>Materials Engineers</i> or <i>AP4172 Simulation and</i> <i>Modelling in</i> <i>Multidisciplinary</i> <i>Sciences</i> may apply for exemption. They are required to complete any course of 3 credits (NOT within the major requirements including core courses and electives) to replace the exempted credits.
MA1201/ MA1301	Calculus and Basic Linear Algebra II/ Enhanced Calculus and Linear Algebra II	B1	3	Students may be considered for exemption subject to passing the placement test or recommendation of MA department. They are required to complete any course of 3 credits (NOT within the major requirements, including core courses and electives) to replace the exempted credits.
Advanced Standing II (Senior-year Entry)				
Any courses not within the Major Requirements (including core courses and electives)		B1/2/3/4	6	

2.3. College/School Requirement, if any

(The catalogue term of the College/School requirement that students will follow will be the same as their admission term.)

Course Code	Course Title	Level	Credit Units	Remarks
Normative 4-year Degree (6 credit units)				
Science (6 Credit Units) Choose two from the following three subject areas				
<i>Physics</i>				
AP1201	General Physics I	B1	3	
<i>Chemistry</i>				
BCH1100	Chemistry	B1	3	
<i>Biology</i>				
BCH1200	Discovery in Biology	B1	3	
Advanced Standing I (0 credit unit)				
College Requirements waived				
Advanced Standing II (Senior-year Entry) (0 credit unit)				
College Requirement waived				

2.4. English Language Requirement

Normative 4-year degree students and Advanced Standing I students who passed the 6 credit units of specified GE English courses, and Advanced Standing II students who passed the 3 credit units of discipline-specific GE English course are recognized as fulfilling the University's English Language Requirement.

Students scoring below Level 4 in HKDSE English Language or Grade D in HKALE AS-level Use of English or students who do not possess an equivalent qualification are required to complete two 3-credit unit courses, EL0200A English for Academic Purposes 1 and EL0200B English for Academic Purposes 2, prior to taking the GE English courses. Students who demonstrate that they have achieved a grade B or above in their overall course results for EL0200A will achieve 3 credits and also be considered to have satisfied the pre-requisite for entry to the GE English courses without needing to take EL0200B. The credit units of EL0200A and EL0200B will not be counted towards the minimum credit units required for graduation and will not be included in the calculation of the cumulative grade point average (CGPA). However, they will be counted towards the maximum credit units permitted.

2.5. Chinese Language Requirement

Students scoring below Level 4 in HKDSE Chinese Language, or below Grade D in HKALE AS-level Chinese Language and Culture will be required to complete a 3-credit unit course CHIN1001 University Chinese I. The 3 credit units will not be counted towards the minimum credit units required for graduation and will not be included in the calculation of the cumulative grade point average (CGPA). However, they will be counted towards the maximum credit units permitted.

For course details, please refer to the ARRO website (http://www.cityu.edu.hk/ug/current/catalogue/catalogue_UC.htm?page=B/B_course_PHY.htm). Please always refer to this website for the most updated information.

2.6. Major Requirement

The catalogue term of the major requirement that students will follow will be the effective term of the declared/allocated major.

Core Courses

- Normative 4-year Degree (45 or 48 credit units; 50 or 53 credit units[^])

- Advanced Standing I (45 or 48 credit units)

- Advanced Standing II (39 or 42 credits)

Course Code	Course Title	Level	Credit Units	Remarks
AP1202	General Physics II	B1	3	Advanced Standing I and II Students with Grade D or above in HKAL Physics may apply for exemption. Other qualifications may be considered for exemption on a case by case basis. They are required to complete any 3 CU course to replace the exempted credits.
AP1203	General Physics III	B1	3	Advanced Standing I and II Students with Grade D or above in HKAL Physics may apply for exemption. Other qualifications may be considered for exemption on a case by case basis. They are required to complete any 3 CU course to replace the exempted credits.
AP2191	Electricity and Magnetism	B2	3	Students declaring a second major in BSCAP will be exempted from taking this course if they have completed and passed <i>AP1202 General Physics II</i> . They are required to take any 3 CU course to replace the exempted credits.
AP2212	Measurement and Instrumentation	B2	3	Advanced Standing II students are not required to take this course.

AP2213	Advanced Measurement and Instrumentation	B2	3	Advanced Standing II students are not required to take this course.
AP3114	Computational Methods for Physicists and Materials Engineers	B3	3	Normative 4-year degree students who plan to pursue the Joint Bachelor's Degree Program between CityU and ColumbiaU are required to take MA3511 Ordinary Differential Equations to replace this course. *Students must get the prior approval from the Department for enrolling the Joint Bachelor's Degree Program between CityU and ColumbiaU.
AP3202	Modern Physics	B3	3	
AP3204	Waves and Optics	B3	3	
AP3205	Electromagnetism	B3	3	
AP3244	Design Laboratory	B3	3	
AP3251	Quantum Physics	B3	3	
AP3272	Introduction to Solid State Physics	B3	3	Students declaring a second major in BSCAP will be exempted from taking this course if they have completed and passed <i>AP3172 Electronic Properties of Solids</i> . They are required to take any 3 CU course to replace the exempted credits.
AP3290	Thermodynamics	B3	3	Students declaring a second major in BSCAP will be exempted from taking this course if they have completed and passed <i>AP3190 Thermodynamics of Materials</i> . They are required to take any 3 CU course to replace the exempted credits.
AP4116#/ AP4216/ AP4217/ FS4003	Dissertation/ Project/ Dissertation/ CES Placement Project	B4	6/ 3/ 6/ 6	- Students taking <i>AP4216 Project</i> are required to <u>take 3</u> more credits of elective course.

				<p>- <i>FS4003 CES Placement Project</i> (6 CU) can be used to replace <i>AP4217 Dissertation</i> (6 CU). Students taking <i>FS4003</i> are required to take <i>FS4001</i> simultaneously offered by the Co-operative Education Centre.</p> <p># Students are required to enroll <i>AP4217</i> if they choose to complete a dissertation course to fulfil the major requirement. Alternatively, they may take <i>AP4116</i> (dissertation course for materials engineering major students) if they are interested in working on materials engineering related topics for their dissertations.</p>
MA2158	Linear Algebra and Calculus	B2	3	<ul style="list-style-type: none"> Advanced Standing students may be required to complete <i>MA1200 Calculus</i> and <i>Basic Linear Algebra I</i> and <i>MA1201 Calculus</i> and <i>Basic Linear Algebra II</i> (the pre-requisite courses) before they are allowed to enroll <i>MA2158 Linear Algebra and Calculus</i>. They are advised to apply and sit for the placement test organized by MA department before the commencement of Semester A of their admitted academic year. Normative 4-year

				<p>degree students who plan to pursue the Joint Bachelor's Degree Program between CityU and ColumbiaU are required to take MA2508 Multi-variable Calculus to replace this course.</p> <p>*Students must get the prior approval from the Department for enrolling the Joint Bachelor's Degree Program between CityU and ColumbiaU.</p>
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Note: Students who plan to pursue the Joint Bachelor's Degree Program between CityU and ColumbiaU are required to take **MA2503 Linear Algebra**.

^ For students who plan to pursue the Joint Bachelor's Degree Program between City University of Hong Kong and Columbia University

Electives

- Normative 4-year Degree (21 or 18 credit units; 15 or 12 credit units[^])

- Advanced Standing I (21 or 18 credit units)

- Advanced Standing II (21 or 18 credit units)

Course Code	Course Title	Level	Credit Units	Remarks
AP2102	Introduction to Materials Engineering	B2	3	
AP3171	Materials Characterization Techniques	B3	3	
AP3206	Nuclear Radiation and Detection	B3	3	
AP3240	Biological Physics	B3	3	
AP3242	Directed Studies in Physics/Materials Engineering	B3	3	
AP4121	Thin Film Technology and Nanocrystalline Coatings	B4	3	
AP4127	Smart Sensors: From Engineering to Applications	B4	3	
AP4172	Simulation and Modelling in Multidisciplinary Sciences	B4	3	

AP4230	Radiation Safety	B4	3	
AP4232	Radiotherapy Physics	B4	3	
AP4233	Imaging Physics	B4	3	
AP4254	Fundamentals of Laser Optics	B4	3	
AP4255	Optoelectronic Devices and Systems	B4	3	
AP4265	Semiconductor Physics and Devices	B4	3	
AP4271	Environmental Radiation	B4	3	
AP4272	Environmental Radiation Measurements	B4	3	
AP4273	Special Topics in Physics	B4	3	
AP4274	Radiation Biophysics	B4	3	
AP4275	Radiological Physics and Dosimetry	B4	3	
AP4280	Advanced Optics Laboratory	B4	3	
AP4282	Physical Optics	B4	3	
AP4283	Medical Physics I	B4	3	
AP4284	Medical Physics II	B4	3	

[^] For students who plan to pursue the Joint Bachelor's Degree Program between City University of Hong Kong and Columbia University

For course details, please refer to the ARRO website
(http://www.cityu.edu.hk/ug/current/catalogue/catalogue_UC.htm?page=B/B_course_PHY.htm)

Please always refer to this website for the most updated information.

Students may ask for special approval for waiving the course prerequisites. The waiving of course prerequisites would be subject to the approval from both the course leader and the major leader on the basis of the students' academic background.

3. Streaming

(I) Photonics Stream

15 credits from the below list:

AP3242	Directed Studies in Physics/ Materials Engineering (3 credit units)
AP4127	Smart Sensors: From Engineering to Applications (3 credit units)
AP4216	Project (Photonics related) (3 credit units)
AP4217	Dissertation (Photonics related) (6 credit units)
AP4254	Fundamentals of Laser Optics (3 credit units)
AP4255	Optoelectronic Devices and Systems (3 credit units)
AP4273	Special Topics in Physics (if related to Photonics) (3 credit units)
AP4280	Advanced Optics Laboratory (3 credit units)
AP4282	Physical Optics (3 credit units)
FS4002*	Industrial Attachment Scheme (Photonics related) (3 credit units)

* FS4002 Industrial Attachment Scheme is an internship training offered by the Co-operative Education Centre of the College of Science and Engineering. It will be counted as a free elective course.

(II) Nuclear Environmental Physics Stream

15 credits from the below list:

Courses in the Applied Physics major:

AP3230	Nuclear Radiation and Measurements (3 credit units)
AP3242	Directed Studies in Physics/ Materials Engineering (3 credit units)
AP4127	Smart Sensors: From Engineering to Applications (3 credit units)
AP4216	Project (Nuclear Environmental Physics related) (3 credit units)
AP4217	Dissertation (Nuclear Environmental Physics related) (6 credit units)
AP4230	Radiation Safety (3 credit units)
AP4271	Environmental Radiation (3 credit units)
AP4272	Environmental Radiation Measurements (3 credit units)
AP4273	Special Topics in Physics (if related to Nuclear Environmental Physics) (3 credit units)
AP4274	Radiation Biophysics (3 credit units)

Course not in the Applied Physics major, and students can take this course as a free elective course:

AP4231/ JC4231	Nuclear Reactor Physics (3 credit units)
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(III) Materials Physics Stream

15 credits from the below list:

AP3171	Materials Characterization Techniques (3 credit units)
AP4120	Microelectronic Materials and Processing (3 credit units)
AP4121	Thin Film Technology and Nanocrystalline Coatings (3 credit units)
AP4127	Smart Sensors: From Engineering to Applications (3 credit units)
AP4216	Project (Materials Physics related) (3 credit units)
AP4217	Dissertation (Materials Physics related) (6 credit units)
AP4265	Semiconductor Physics and Devices (3 credit units)

(IV) Biomedical Physics Stream

15 credits from the below list:

AP3206	Nuclear Radiation and Detection (3 credit units)
AP3230	Nuclear Radiation and Measurements (3 credit units)
AP3240	Biological Physics (3 credit units)
AP3242	Directed Studies in Physics/ Materials Engineering (3 credit units)
AP4127	Smart Sensors: From Engineering to Applications (3 credit units)
AP4216	Project (Biomedical Physics related) (3 credit units)
AP4217	Dissertation (Biomedical Physics related) (6 credit units)
AP4232	Radiotherapy Physics (3 credit units)
AP4233	Imaging Physics (3 credit units)
AP4273	Special Topics in Physics (if related to Biomedical Physics) (3 credit units)
AP4274	Radiation Biophysics (3 credit units)
AP4275	Radiological Physics and Dosimetry (3 credit units)
AP4283	Medical Physics I (3 credit units)
AP4284	Medical Physics II (3 credit units)

(V) General (no streaming)

Students can opt to become a generalist, i.e. students do not specialize in any one of the above streams.

Please always refer to the PHY department website (<http://www.phy.cityu.edu.hk>) for the most updated information of Streaming.

4. Recommended Study Plan

1. A set of core courses (see tables below) is pre-registered for students according to their recommended study plan.
2. Students are advised to plan their study according to the suggested pattern to avoid possible time conflict between courses. They should also pay attention to the Degree Requirements (Section 2) when planning their studies.
3. For GE courses, Chinese course, Electives and Free Electives, students will need to register them on web during the add/drop period.
4. Students wishing to drop/change a pre-assigned course will need to do so on web or using the paper form during the add/ drop period. However, after dropping/changing the course, the places may be taken up by other students and you may not be able to enrol in the pre-assigned course again.

For Normative 4-year Degree Students

Year 1

Semester A		Semester B		Summer Term	
Course Code	CUs	Course Code	CUs	Course Code	CUs
AP1201	3	AP1203	3		
AP1202	3	BCH1100	3		
MA1200 or MA1300	3	CS1102	3	<input checked="" type="checkbox"/> Go Global - Exchange <input type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning	
GE1401 or EL0200A	3	MA1201 or MA1301	3		
GE1501	3	GE2401 or EL0200B	3		
<input type="checkbox"/> Go Global - Exchange <input type="checkbox"/> Go Global - Internship <input type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning		<input type="checkbox"/> Go Global - Exchange <input type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning			

Year 2

Semester A		Semester B		Summer Term	
Course Code	CUs	Course Code	CUs	Course Code	CUs
MA2158	3	AP2191	3		
AP2212	3	AP2213	3		
GE Courses	9	AP3114	3	<input checked="" type="checkbox"/> Go Global - Exchange <input type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning	
		AP3202	3		
		AP3204	3		
<input checked="" type="checkbox"/> Go Global - Exchange <input type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning		<input checked="" type="checkbox"/> Go Global - Exchange <input type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning			

Year 3

Semester A		Semester B		Summer Term	
Course Code	CUs	Course Code	CUs	Course Code	CUs
AP3251	3	AP3205	3		
AP3290	3	AP3244	3		
GE Course	3	AP3272	3	<input checked="" type="checkbox"/> Go Global - Exchange <input checked="" type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning	
Free Electives	6	Free Electives	6		
<input checked="" type="checkbox"/> Go Global - Exchange <input checked="" type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning		<input checked="" type="checkbox"/> Go Global - Exchange <input checked="" type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning			

Year 4

Semester A		Semester B		Summer Term	
Course Code	CUs	Course Code	CUs	Course Code	CUs
AP4116 or AP4216 or AP4217	3	AP4116 or AP4217 or FS4003#	3 or 6#		
Major Electives	12	Major Electives	6 or 9≠		
		Free Electives	6	<input type="checkbox"/> Go Global - Exchange <input type="checkbox"/> Go Global - Internship <input type="checkbox"/> Go Global - Learning Abroad <input type="checkbox"/> Go Global - Service Learning	
<input checked="" type="checkbox"/> Go Global - Exchange <input checked="" type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning		<input checked="" type="checkbox"/> Go Global - Exchange <input checked="" type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning			

Please refer to the details of the Go Global program for eligibility of joining the program concerned.

Year 4 students who take FS4003 CES Placement Project (6CUs) in Semester B need to continue their studies in the following Summer Term and Semester A. They are also required to take FS4001 Co-operative Education Scheme (CES) simultaneously.

≠ Year 4 students need to take 9 CUs for major elective courses in Semester B if they select AP4216 Project (3CUs) in Semester A.

For Advanced Standing I Students

Year 2

Semester A		Semester B		Summer Term	
Course Code	CUUs	Course Code	CUUs	Course Code	CUUs
AP1202	3	AP1203	3		
MA1201	3	AP2191	3		
CS1102	3	AP3202	3	<input checked="" type="checkbox"/> Go Global - Exchange <input type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning	
GE2401	3	AP3204	3		
GE course	3	GE1401	3		
<input type="checkbox"/> Go Global - Exchange <input type="checkbox"/> Go Global - Internship <input type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning		<input type="checkbox"/> Go Global - Exchange <input type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning			

Year 3

Semester A		Semester B		Summer Term	
Course Code	CUUs	Course Code	CUUs	Course Code	CUUs
MA2158	3	AP2213	3		
AP2212	3	AP3114	3		
AP3251	3	AP3205	3	<input checked="" type="checkbox"/> Go Global - Exchange <input checked="" type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning	
AP3290	3	AP3244	3		
GE1501	3	AP3272	3		
<input checked="" type="checkbox"/> Go Global - Exchange <input checked="" type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning		<input checked="" type="checkbox"/> Go Global - Exchange <input checked="" type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning			

Year 4

Semester A		Semester B		Summer Term	
Course Code	CUUs	Course Code	CUUs	Course Code	CUUs
AP4116 or AP4216 or AP4217	3	AP4116 or AP4217 or FS4003#	3 or 6#		
Major Electives	12	Major Electives	6 or 9≠		
		Free Electives	3	<input type="checkbox"/> Go Global - Exchange <input type="checkbox"/> Go Global - Internship <input type="checkbox"/> Go Global - Learning Abroad <input type="checkbox"/> Go Global - Service Learning	
		GE course	3		
<input checked="" type="checkbox"/> Go Global - Exchange <input checked="" type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning		<input checked="" type="checkbox"/> Go Global - Exchange <input checked="" type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning			

Please refer to the details of the Go Global program for eligibility of joining the program concerned.

Year 4 students who take FS4003 CES Placement Project (6CUUs) in Semester B need to continue their studies in the following Summer Term and Semester A. They are also required to take FS4001 Co-operative Education Scheme (CES) simultaneously.

≠ Year 4 students need to take 9 CUUs for major elective courses in Semester B if they select AP4216 Project (3CUUs) in Semester A.

For Advanced Standing II Students

Year 3

Semester A		Semester B		Summer Term	
Course Code	CUs	Course Code	CUs	Course Code	CUs
MA2158	3	AP1203	3		
AP1202	3	AP2191	3		
Major Electives	3	AP3114	3	<input checked="" type="checkbox"/> Go Global - Exchange <input checked="" type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning	
GE courses	9	AP3202	3		
		AP3204	3		
		GE2401	3		
<input type="checkbox"/> Go Global - Exchange <input type="checkbox"/> Go Global - Internship <input type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning		<input type="checkbox"/> Go Global - Exchange <input type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning			

Year 4

Semester A		Semester B		Summer Term	
Course Code	CUs	Course Code	CUs	Course Code	CUs
AP4116 or AP4216 or AP4217	3	AP4116 or AP4217 or FS4003#	3 or 6#		
AP3251	3	AP3205	3		
AP3290	3	AP3244	3	<input type="checkbox"/> Go Global - Exchange <input type="checkbox"/> Go Global - Internship <input type="checkbox"/> Go Global - Learning Abroad <input type="checkbox"/> Go Global - Service Learning	
Major Electives	9	AP3272	3		
		Major Electives	6 or 9≠		
<input checked="" type="checkbox"/> Go Global - Exchange <input checked="" type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning		<input checked="" type="checkbox"/> Go Global - Exchange <input checked="" type="checkbox"/> Go Global - Internship <input checked="" type="checkbox"/> Go Global - Learning Abroad <input checked="" type="checkbox"/> Go Global - Service Learning			

Please refer to the details of the Go Global program for eligibility of joining the program concerned.

Year 4 students who take FS4003 CES Placement Project (6CUs) in Semester B need to continue their studies in the following Summer Term and Semester A. They are also required to take FS4001 Co-operative Education Scheme (CES) simultaneously.

≠ Year 4 students need to take 9 CUs for major elective courses in Semester B if they select AP4216 Project (3CUs) in Semester A.

5. Academic Regulations

Students should observe the University's Academic Regulations for 4-year Undergraduate Degrees at all times. For further details and most updated information, please always refer to the website of Academic Regulations and Records Office (ARRO) (www6.cityu.edu.hk/arro/files/file/hk/AR/AR_4-year%20UG_060617_1.pdf).

6. Academic Honesty

Students must pursue their studies with academic honesty. Academic honesty is central to the conduct of academic work. Students are expected to present their own work, give proper acknowledgement of other's work, and honestly report findings obtained. As part of the University's efforts to educate students about academic honesty, all students are expected to complete the Online Tutorial and Quiz on Academic Honesty and make a Declaration on their understanding of academic honesty.

Plagiarism is a serious offence involving “the use of somebody else's ideas, words, etc. as one's own”. Examples of such acts are copying other students' work in examinations, tests, or coursework assignments, repetition of part or whole sentences/paragraphs/any materials from hard-copy publications or online sites for one's own use **without acknowledgement of the source in one's work.**

Students who commit an act of academic dishonesty which is regarded as a **serious academic offence** in the University may lead to disciplinary action with a penalty including without limitation, expulsion from the University, debarment from re-admission, deprivation of an academic award already conferred or revocation of a certification granted.

For details of the rules on Academic Honesty, students should refer to the website of Office of the Provost (www.cityu.edu.hk/provost/academic_honesty/rules_on_academic_honesty.htm).

7. Assessment

Students are assessed through a variety of methods, creating ample opportunity to demonstrate their abilities. The means of assessment vary from course to course but typically include coursework as well as the more traditional written examinations. Coursework consists of written assignments, computer simulations, tutorials, project, laboratory reports and presentations etc. Examinations are held at the end of each course.

For undergraduate courses, students have to obtain at least 30% of the maximum marks in the final examination in order to pass a course (i.e. D or above) where there is an examination component in the assessment.

Students should check the updated minimum passing mark for specific courses under the section of “Programmes and Courses” of the ARRO’s website (www.cityu.edu.hk/arro).

7.1. Mitigation

A student who believes that his/her ability to attend an examination, or in-course assessment with a weighting of 20% or above, has been adversely affected by circumstances beyond his/her control may submit a mitigation request with the scanned relevant supporting documents (e.g. medical certificate) to the Department via AIMS **no later than 5 working days from the scheduled date for completing the affected examination or assessment. It is the student’s responsibility to hand in the original copies of all the required documents to the Department by the aforesaid deadline as well.**

Upon receipt of a mitigation request (including the original copies of the required documents), the Department will investigate the case, in consultation with the course-offering academic unit (if appropriate). Only compelling reasons such as illness, hospitalization, accident, family bereavement or other unforeseeable serious circumstances will be considered. If the case is substantiated, the Assessment Panel will then decide if a make-up examination or coursework or other alternative assessment will be offered to the student concerned. **Only one make-up examination will be arranged per course per semester.**

7.2. Award Classifications

The various classifications are based on the CGPAs*. The general guidelines are as follows:

<u>Classification of Award</u>	<u>CGPA</u>
First Class Honours	3.50 or above
Upper Second Class Honours	3.00 – 3.49
Lower Second Class Honours	2.50 – 2.99
Third Class Honours	2.00 – 2.49
Pass	1.70 – 1.99

*Please refer to the PHY department website

(<http://www.phy.cityu.edu.hk/programmes/Assessment.htm>) for the calculation of SGPA and CGPA.

7.3. Academic Regulations on Termination of Study

The Examination Board may terminate the study of a student under the following circumstances:

-
- (i) The student's SGPA is below 1.00 for two consecutive semesters; or
 - (ii) The student's academic progress is unsatisfactory and is unable to meet the conditions stipulated by the home academic unit after being put on Academic Probation for two consecutive semesters.
-

Students' studies will be **TERMINATED** if they **FAIL** to pass a required course, or its equivalent/substitute course, after **THREE** attempts.

Further details can be obtained from the ARRO's website, under the section of "Current Students" → "Regulations & Guidelines" (www.cityu.edu.hk/arro).

8. Late drop policy

Students can add or drop a course during the add/drop period prescribed by the University. After the add/drop deadline, requests for late drop of courses will **NOT** be entertained unless under exceptional circumstances (e.g. medical grounds). Such late requests must be submitted no later than the end of the teaching period for the relevant semester/term for approval by the Head of the course-offering academic unit.

9. Laboratory safety

All laboratory users are bound by the Safety Regulations of the City University as well as the relevant enacted laws and ordinances. In addition, the following rules should be adhered to.

1. Undergraduate students are NOT ALLOWED TO WORK in a laboratory WITHOUT SUPERVISION.
2. Undergraduate students are NOT ALLOWED TO KEEP ANY KEY of the laboratories.
3. New research students/staff are NOT ALLOWED TO WORK in a laboratory before the completion of the safety training.
4. Students/staff SHOULD NOT WORK ALONE in a laboratory; when he/she needs to work with hazardous chemicals, e.g., strong acids and alkalis or on electricity connection, there MUST be at least one more person in the same room. All research personnel should seek the help of a companion when he/she must work in the laboratory outside normal office hours, otherwise he/she is required to utilize the Personal Alarm System in PHY labs. Experiments should not be left unattended.
5. Prior approval from your supervisor is needed to stay in a laboratory beyond 11:00 p.m. Form can be downloaded from www.ap.cityu.edu.hk/overnight.pdf.
6. SMOKING, EATING & DRINKING ARE STRICTLY FORBIDDEN. Do not bring food or drinks into a laboratory.
7. DO NOT RUN OR PLAY in laboratories.
8. Loose clothing is potentially hazardous. Secure ties and tie up long hair. You are also advised to wear laboratory coat.
9. Familiarise yourselves with the FIRE EXITS and ESCAPE ROUTES. These are posted in every laboratory.
10. Familiarise yourself with EMERGENCY PROCEDURES. These are posted at the entrance of each laboratory.
11. Wastes & solvents must be disposed of properly. Consult your supervisor or the technicians in case of doubt.
12. All accidents must be reported to the technical officer/supervisor immediately.
13. Wearing EYE PROTECTION is mandatory when working with hazardous chemicals or operating UV instruments or LASERS, and in laboratories where such notices are posted. Consult your supervisor or the technicians for the appropriate type of eye-protection equipment. In other areas, you are encouraged to wear eye protection as a good safety practice. Users of laser classes 3B and 4 are reminded to undergo eye-sight tests arranged by the university. This should be carried out before the first use of laser and again before leaving the university.
14. Before commencement of a new experiment, you should complete a RISK ASSESSMENT and obtain approval from your supervisor. Risk Assessment Form can be downloaded from www.ap.cityu.edu.hk/safety/risk-assessment.pdf.
15. There is a separate set of rules governing the use of Radiation Laboratories. These are posted at the entrance of the Radiation Laboratory. All users must observe these rules.

For further details of safety guidelines, please refer to the PHY department website (www.phy.cityu.edu.hk/index.aspx?id=20061214155729&lang=e).

10. Communication Channels

There are various channels of communication between students and the Department. On an informal basis, students having academic difficulties with a course are encouraged to approach their academic advisors, lecturer or tutor concerned.

A formal consultative channel between students and faculties is established via the Joint Staff/Student Consultative Committee (JSSCC) and Programme Committee. The Programme Committee is charged with the responsibility of monitoring the operation and quality assurance of the programme. 2-3 student representatives from each cohort will be nominated for joining the committees. The Committees meet at least once a semester. At the meetings, students can express their views on the curriculum and organization of the programme.

Students are also welcome to approach the major leaders, academic advisors or course leaders whenever they encounter any study-related difficulties.

Major Leader

Prof K S CHAN

Office: G6708, Green Zone, 6/F, Yeung Kin Man Academic Building

Phone: 3442 7814

Email: apkschan@cityu.edu.hk

Deputy Major Leader

Dr Condon LAU

Office: P6708, Purple Zone, 6/F, Yeung Kin Man Academic Building

Phone: 3442 7882

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Academic Advisors

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Prof X L WANG

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Prof K M YU

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Prof Peter K N YU

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Phone: 3442 7812

Email: peter.yu@cityu.edu.hk

Prof R Q ZHANG

Office: G6719, Green Zone, 6/F, Yeung Kin Man Academic Building

Phone: 3442 7849

Email: aprqz@cityu.edu.hk

11. Useful information

11.1 Course registration for 2017-18

- For 2017-18, students will be pre-registered in some of the required courses including AP1202, AP2212, AP3244, AP3251, AP3290, AP4216/AP4217, MA1200, MA1201, MA2158, CS1102 and GE2401 in Semester A and AP1203, AP2191, AP2213, AP3114, AP3202, AP3204, AP3205, AP3272, GE1401 and GE2401 in Semester B.
- The web registration period for Semester A will start **from 21 August 2017 and end on 11 September 2017** but **you need to check your time ticket from “AIMS”**. For details on course registration, please refer to “Course Registration” under ARRO website (www.cityu.edu.hk/arro).
- Please check your curriculum requirements, review your study plan and then make appropriate adjustments to your course registration **after consulting your academic advisors if necessary**.
- Add/Drop of courses can be made through AIMS for web-enabled courses during the web registration period.
- For non-web-enabled courses, students should seek endorsement from the **course-offering academic units** by using the Add/Drop Form before submitting the change request to ARRO.
- If a student drops a course after the add/drop period, an ‘X’ grade will be assigned for the course. The ‘X’ grade will be printed on the student’s transcript.

Important notes

How to do the Add/ Drop on web

- Go to www.cityu.edu.hk from any terminal on campus or off campus and click “Students”.
- Log onto “AIMS” and then click “Course Registration”.
- Choose “Add or Drop Classes”.

For details on course registration arrangements for 2017-2018, please refer to “Course Registration” under the ARRO website (www.cityu.edu.hk/arro).

11.2 How to access your personal class schedule

- Go to CityU home page (www.cityu.edu.hk) from any terminal on campus or off campus.
- Log onto “e-Portal” under “Quick Links” or “My CityU”. *If you have problems in logging in, please follow the instructions in “Having problems logging in?”.*
- Select “View Student Schedule” under the “Courses I am taking” box.
- Press the “View Detail Schedule” button at the bottom of your timetable to display details of your class schedule.

11.3 How to get instructors' handouts through Canvas

- Go to CityU home page (www.cityu.edu.hk) from any terminal on campus or off campus.
- Log onto "Canvas" under "Quick Links".
- Click "Courses".

Canvas User Guides are available at "e-Learning" under the "IT Links" of the OCIO website (http://www6.cityu.edu.hk/elearn/elearn_stud.html).

11.4 How to check curriculum requirements and course syllabuses

- Go to CityU home page (www.cityu.edu.hk)
- Click "Academic Programmes".

11.5 How to access your student email account

- Go to www.cityu.edu.hk from any terminal on campus or off.
- Click "Email" under "My CityU"
- Click "@my.cityu.edu.hk (office 365)"

**For email communication, please state your name, student number, contact telephone number, programme and entry cohort.*

**Always check and clear your email account, and make sure it does not exceed the quota (a maximum of 25GB).*

11.6 How to access DegreeWorks

DegreeWorks is a web-based academic advising and degree audit tool primarily introduced for undergraduate students under the 4-year degree curriculum. DegreeWorks matches a student's academic record against the curriculum requirements. It offers a user-friendly interface that helps students learn easily what courses they still need to take to fulfill the requirements of College/School, GE, major, minor, etc. It also facilitates communication between students and advisors.

Students are encouraged to use the "Planner" function in DegreeWorks. "Planner" helps you create a long term study plan for your degree completion. Using this tool, you can easily discuss your academic goals and plan with your Advisor.

- Go to www.cityu.edu.hk from any terminal on campus or off campus.
- Log onto "AIMS".
- Go to the "Study Plan" tab in AIMS.
- Then you can view the Student advising worksheet and advising notes, and access other features available in DegreeWorks.

Important notes

Students are advised to go through the online tutorials and all materials available on ARRO's website to learn more about DegreeWorks.

- Go to www.cityu.edu.hk/arro
- Click "Current Students".
- Choose "DegreeWorks".
- Read "Introduction", "Tutorials" and "Frequently Asked Questions".

12. Student Development Services (SDS)

The SDS offers many student-centred services to students. It provides support and assistance for students in the following areas:

- Attainment of an all-round development
- Enrichment of campus life
- Development of career plans and choices
- Solving personal problems
- Enhancement of physical and mental well-being
- Provision of financial assistance
- Scholarship application
- Welfare provisions

If you need any advice on your personal issues other than academic concerns, you may approach SDS to schedule a counselling appointment:

Tel.: 3442 8478

E-mail: sds@cityu.edu.hk

Address: Student Development Services, 6/F, Amenities Building

13. Administrative Support from General Office

Address : G6702, Green Zone, 6/F, Yeung Kin Man Academic Building
Office Hours : Monday to Friday
8:30 am - 12:45 pm
2:00 pm - 5:45 pm
Telephone : (852) 3442 7831
Fax : (852) 3442 0538
Email : phy.go@cityu.edu.hk
Website : www.cityu.edu.hk/phy

14. Appendix: Academic Staff Profile

STAFF

*Head of Department of Physics and
Chair Professor of Physics*

Prof X L Wang

BSc *Peking University, China*
PhD *Iowa State University, USA*
Fellow, American Physical Society
Email : phy.head@cityu.edu.hk
(for departmental matters)
xlwang@cityu.edu.hk

Personal Secretary

Ms Sare W Y Lau

Email : sare.lau@cityu.edu.hk

Associate Head and Professor

Prof K S Chan

BSc PhD *University of Hong Kong*
Email : apkschan@cityu.edu.hk

Chair Professor of Materials Engineering

Prof Paul K Chu

BSc *The Ohio State University, USA*
MSc PhD *Cornell University, USA*
Fellow, American Vacuum Society
Fellow, Institute of Electrical and
Electronics Engineers
Fellow, American Physical Society
Fellow, Materials Research Society
Fellow, Hong Kong Institution of
Engineers
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Professors

Prof S C Tjong

BSc *National Taiwan University, Taiwan*
MSc PhD *University of Manchester, UK*
Chartered Engineer, UK
Chartered Scientist, UK
Fellow, Institute of Materials, Minerals
and Mining, UK
Fellow, Hong Kong Institution of
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AREAS OF SPECIALISM

Neutron and synchrotron scattering
Phase transformation, deformation,
magnetism, residual stress determination
Metallic glasses, nanostructured materials,
magnetic shape memory alloys

Semiconductor physics
Photonics technology
Nanoscience and nanotechnology
Spintronics
Superconductivity

Plasma science and engineering
Surface engineering of functional materials
Biomaterials and nanobiology
Energy and sensor materials
Nanostructured thin films and interfaces

Surface science
Electron microscopy
Polymer composites
Biomaterials
Nanostructured materials

Prof K M Yu

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Ion Beam Analysis and Modification of Materials
Defects in Semiconductors
Photovoltaic Materials
Nitride and Oxide semiconductors
Transparent Conductors

Prof Peter K N Yu

BSc PhD *University of Hong Kong*
Chartered Scientist, UK
Chartered Physicist, UK
Fellow, Institute of Physics, UK
Chartered Radiation Protection Professional
Member, Society of Radiological Protection, UK
Fellow, Hong Kong Institution of Engineers
Email : peter.yu@cityu.edu.hk

Radiation biophysics
Medical physics
Biointerfaces

Prof R Q Zhang

BSc MSc PhD *Shandong University, China*
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Surface, interface and microstructures of functional materials
Vapor-solid interactions
Computational materials science
Nanoscience

*Associate Professor***Dr S T Chu**

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Integrated photonics
Sensors and sensing systems
Numerical methods

*Assistant Professors***Dr Condon Lau**

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MSc PhD *Massachusetts Institute of Technology, USA*
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Optics
Nuclear magnetic resonance
Biophysics
Spectroscopy
Imaging

Dr Suresh M Chathoth

MSc *Andhra University, India*
MPhil *University of Madras, India*
MTech *National Institute of Technology Karnataka, India*
PhD *Technical University of Munich, Germany*
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Neutron scattering
Dynamics of liquid in confinements
Energy storage
Glass transition

Dr Shubo Wang

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Plasmonics
Metamaterials
Photonic crystals
Opto-mechanics
Computational electrodynamics

Dr Xin Wang

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Theoretical condensed matter physics
Spin quantum computation
Correlated electron system
Computational methods