



FOOTHILL COLLEGE

Institutional Research and Planning

DATE: January 17, 2017
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FROM: Lisa Ly, Acting College Researcher
RE: 2015-16 General Studies: Science Degree Recipients

Update

This report is an update to the original report, dated January 10, 2017, which was shared at the January 11, 2017 General Science Program Review Meeting. After meeting with program stakeholders, Institutional Research & Planning Office (IR&P) was asked to examine whether any of the 2015-16 General Science graduates enrolled in a Foothill Allied Health and/or De Anza nursing course during fall 2016 term. The finding can be found in section 4 of this report. All other sections remain unchanged.

Overview

The purpose of this report is to help facilitate program review discussion by providing initial findings of the 24 students who earned a General Science degree in 2015-16. In particular, the following three questions were provided to IR&P:

1. Of the students who received the General Science degree from Foothill during 2015-16, which courses did they use when applying for the degree?
2. Of the students who received the General Science degree during 2015-16, how many also received another degree or certificate during 2015-16? What were those other degrees or certificates in?
3. Of the students enrolled in any fall 2016 course at Foothill, how many have declared General Science as their major?

I. Ethnicity and Gender

- Latino/a and White students comprised the majority of the 2015-16 General Science degree recipients. Degree recipients were more likely to be female (71%) than male (29%).
 - 29% (7) Latino/a
 - 29% (7) White
 - 21% (5) Asian
 - 8% (2) Filipino
 - 8% (2) Other¹
 - 4% (1) African American

¹ Other includes Pacific Islander and decline to state.

II. Courses Used When Applying for Degree

In order to determine which courses students most likely used when they applied for the General Science degree, all credit- and degree-applicable courses with a successful outcome² were examined. The 24 students had a combined 467 course enrollment at Foothill. Enrollment was disaggregated by core and non-core courses, with core courses derived from these five areas³: Biology, Chemistry, Engineering/Computer Science/Astronomy/Physical Sciences & Engineering, Mathematics and Physics.

- **Core Courses** with the most enrollment (at least 10) include the following:

1. Biology 40A
2. Biology 40C
3. Mathematics 10
4. Biology 40B
5. Physics 12
6. Biology 41
7. Chemistry 30A

Table 1: General Science Program – Enrollment by Core Course

Subject and Course Number			Enrollment	Percent	Subject and Course Number			Enrollment	Percent	
1	BIOL	Biology F040A	15	9%	21	BIOL	Biology F009L	2	1%	
2	BIOL	Biology F040C	15	9%	22	CHEM	Chemistry F001A	2	1%	
3	MATH	Mathematics F010.	15	9%	23	ENGR	Engineering F010.	2	1%	
4	BIOL	Biology F040B	14	8%	24	MATH	Mathematics F001A	2	1%	
5	PHYS	Physics F012.	13	7%	25	MATH	Mathematics F048B	2	1%	
6	BIOL	Biology F041.	11	6%	26	MATH	Mathematics F048C	2	1%	
7	CHEM	Chemistry F030A	11	6%	27	BIOL	Biology F013.	1	1%	
8	ASTR	Astronomy F010A	8	5%	28	CHEM	Chemistry F001B	1	1%	
9	ASTR	Astronomy F010B	7	4%	29	CHEM	Chemistry F001C	1	1%	
10	BIOL	Biology F014.	6	3%	30	CHEM	Chemistry F012A	1	1%	
11	BIOL	Biology F045.	6	3%	31	ENGR	Engineering F040.	1	1%	
12	CHEM	Chemistry F025.	6	3%	32	MATH	Mathematics F001B	1	1%	
13	BIOL	Biology F010.	5	3%	33	MATH	Mathematics F001C	1	1%	
14	BIOL	Biology F001A	3	2%	34	MATH	Mathematics F048A	1	1%	
15	BIOL	Biology F001B	3	2%	35	PHYS	Physics F002A	1	1%	
16	BIOL	Biology F001C	3	2%	36	PHYS	Physics F002B	1	1%	
17	BIOL	Biology F009.	3	2%	37	PHYS	Physics F002C	1	1%	
18	CHEM	Chemistry F030B	3	2%	38	PHYS	Physics F006.	1	1%	
19	ASTR	Astronomy F010L	2	1%						
20	BIOL	Biology F008.	2	1%						
								Total	175	100%

- Degree recipients did not enroll in the following core courses:

- Biology 12, 23, 28
- Chemistry 9, 12B, 12C, 20
- Engineering/Computer Science/Astronomy/PSE
 - Astronomy 10BH, 54H, and 77
 - Computer Science 1A or 1AH, 1B, 1C, 2A or 2AH, 2B, 2C, 3A, 10, 18, 21B, 49, 85A
 - Engineering 6, 11, 25, 28, 35, 37, 39, 45, 49, 62A, 62B, 62C, 62D, 81, 82, 83, 83A, 83B, 83C, 83E, 102
 - Physical Sciences & Engineering 51
- Mathematics 1AH, 1AHP, 1D, 2A, 2B, 11, 12, 22, 42, 44, 54H
- Physics 2AM, 2BM, 2CM, 4A, 4B, 4C, 4D, 54H

² Success course outcomes reflect course grades of A, B, C, or Pass.

³ Refer to appendix for program requirements and core course listing.

- **Non-core courses** with the most enrollment (at least 10) include the following:

1. Health 21
2. Psychology 1
3. Political Science 1
4. English 1A
5. English 1B
6. Music 8

Table 2: General Science Program – Enrollment by Non-Core Course

Enrollment by Non-Core Course					Enrollment by Non-Core Course						
Rank	Subject	Course Number	Enrollment	Percent	Rank	Subject	Course Number	Enrollment	Percent		
1	HLTH	Health	F021.	15	5%	64	CIS	Computer Information Syst	F015A	1	0%
2	PSYC	Psychology	F001.	13	4%	65	CNSL	Counseling	F005.	1	0%
3	POLI	Political Science	F001.	12	4%	66	CNSL	Counseling	F175.	1	0%
4	ENGL	English	F001A	11	4%	67	COMM	Communications Studies	F010.	1	0%
5	ENGL	English	F001B	11	4%	68	CRLP	Career Life Planning	F070.	1	0%
6	MUS	Music	F008.	10	3%	69	D H	Dental Hygiene	F200L	1	0%
7	COMM	Communications Studies	F001A	9	3%	70	ECON	Economics	F001A	1	0%
8	MATH	Mathematics	F105.	9	3%	71	EMT	Emergency Medical Technic	F303.	1	0%
9	AHS	Allied Health Sciences	F200.	8	3%	72	ENGL	English	F012.	1	0%
10	CNSL	Counseling	F050.	6	2%	73	ESLL	Engl as Second Lang	F025.	1	0%
11	COMM	Communications Studies	F012.	5	2%	74	ESLL	Engl as Second Lang	F026.	1	0%
12	HIST	History	F017A	5	2%	75	ESLL	Engl as Second Lang	F210A	1	0%
13	HIST	History	F017C	5	2%	76	ESLL	Engl as Second Lang	F227.	1	0%
14	MATH	Mathematics	F220.	5	2%	77	ESLL	Engl as Second Lang	F276.	1	0%
15	RSPT	Respiratory Therapy	F200L	5	2%	78	F A	Fine Arts	F001.	1	0%
16	COMM	Communications Studies	F002.	4	1%	79	GEOG	Geography	F001.	1	0%
17	PHIL	Philosophy	F025.	4	1%	80	GEOG	Geography	F002.	1	0%
18	PSYC	Psychology	F040.	4	1%	81	GID	Graphic & Interactive Des	F053A	1	0%
19	R T	Radiologic Technology	F200L	4	1%	82	GID	Graphic & Interactive Des	F053B	1	0%
20	SOC	Sociology	F001.	4	1%	83	GID	Graphic & Interactive Des	F053C	1	0%
21	CNSL	Counseling	F275.	3	1%	84	HIST	History	F004B	1	0%
22	COMM	Communications Studies	F055.	3	1%	85	HUMN	Humanities	F001A	1	0%
23	ENGL	English	F110.	3	1%	86	JAPN	Japanese	F002.	1	0%
24	MATH	Mathematics	F221.	3	1%	87	JAPN	Japanese	F003.	1	0%
25	PHED	Physical Education	F046.	3	1%	88	KINS	Kinesiology	F001.	1	0%
26	PHED	Physical Education	F047B	3	1%	89	MDIA	Media Studies	F006.	1	0%
27	SOC	Sociology	F008.	3	1%	90	MUS	Music	F001.	1	0%
28	ANTH	Anthropology	F001.	2	1%	91	MUS	Music	F003A	1	0%
29	ART	Art	F001.	2	1%	92	MUS	Music	F010.	1	0%
30	BIOL	Biology	F058.	2	1%	93	PHED	Physical Education	F010B	1	0%
31	CNSL	Counseling	F051.	2	1%	94	PHED	Physical Education	F016A	1	0%
32	COMM	Communications Studies	F001B	2	1%	95	PHED	Physical Education	F020A	1	0%
33	COMM	Communications Studies	F004.	2	1%	96	PHED	Physical Education	F020B	1	0%
34	ECON	Economics	F001B	2	1%	97	PHED	Physical Education	F021.	1	0%
35	EMT	Emergency Medical Technic	F304.	2	1%	98	PHED	Physical Education	F021B	1	0%
36	EMT	Emergency Medical Technic	F305.	2	1%	99	PHED	Physical Education	F021D	1	0%
37	ENGL	English	F209.	2	1%	100	PHED	Physical Education	F022.	1	0%
38	ESLL	Engl as Second Lang	F226.	2	1%	101	PHED	Physical Education	F022B	1	0%
39	ESLL	Engl as Second Lang	F236.	2	1%	102	PHED	Physical Education	F023B	1	0%
40	ESLL	Engl as Second Lang	F237.	2	1%	103	PHED	Physical Education	F029.	1	0%
41	HLTH	Health	F055.	2	1%	104	PHED	Physical Education	F036A	1	0%
42	JAPN	Japanese	F001.	2	1%	105	PHED	Physical Education	F037.	1	0%
43	MDIA	Media Studies	F011.	2	1%	106	PHED	Physical Education	F038B	1	0%
44	MUS	Music	F002D	2	1%	107	PHED	Physical Education	F045.	1	0%
45	PHED	Physical Education	F021A	2	1%	108	PHED	Physical Education	F045C	1	0%
46	PHED	Physical Education	F022C	2	1%	109	PHED	Physical Education	F049A	1	0%
47	PHED	Physical Education	F042.	2	1%	110	PHIL	Philosophy	F001.	1	0%
48	PHED	Physical Education	F045A	2	1%	111	PHIL	Philosophy	F004.	1	0%
49	PSYC	Psychology	F004.	2	1%	112	PHIL	Philosophy	F008.	1	0%
50	PSYC	Psychology	F014.	2	1%	113	PHOT	Photography	F008.	1	0%
51	SOSC	Social Science	F079.	2	1%	114	PHOT	Photography	F008H	1	0%
52	ALLD	Adapt Learn: Learn Disab	F210.	1	0%	115	POLI	Political Science	F002.	1	0%
53	ANTH	Anthropology	F002A	1	0%	116	PSYC	Psychology	F010.	1	0%
54	ART	Art	F002J	1	0%	117	PSYC	Psychology	F022.	1	0%
55	ATHL	Athletics	F004.	1	0%	118	PSYC	Psychology	F049.	1	0%
56	ATHL	Athletics	F004A	1	0%	119	SOC	Sociology	F010.	1	0%
57	ATHL	Athletics	F004B	1	0%	120	SOC	Sociology	F011.	1	0%
58	ATHL	Athletics	F004F	1	0%	121	SOC	Sociology	F015.	1	0%
59	BIOL	Biology	F001D	1	0%	122	SPAN	Spanish	F001.	1	0%
60	BUSI	Business	F011.	1	0%	123	SPAN	Spanish	F002.	1	0%
61	CHIN	Chinese-Mandarin	F014B	1	0%	124	VART	Video Arts	F001.	1	0%
62	CHLD	Child Development	F001.	1	0%	125	WMN	Women's Studies	F005.	1	0%
63	CHLD	Child Development	F011.	1	0%						
					Total						
					292 100%						

III. Additional Degree/Certificate Earned

- Of the 24 General Science degree recipients, 8 obtained another degree and/or certificate in 2015-16. Most of the additional awards were for an AA-T (4) or AS (3) degree.

Table 3: Additional Degree and Certificate Obtained by 2015-16 General Science Degree Recipients

Degree and Program		Headcount
Associate in Arts		
1COS	Communication Studies	1
1GSS	General Studies: Social Science	1
Subtotal		2
Associate in Arts-Transfer		
1CMT	Comm Studies for Transfer	2
1PYT	Psychology for Transfer	2
Subtotal		4
Associate in Science		
1BIO	Biological Sciences	2
1CHE	Chemistry	1
Subtotal		3
Certificate of Achievement 45-89 Qtr		
1IDC	CSU General Education-Breadth	2
Subtotal		2
Total		11

IV. Enrolled in a Fall 2016 Course

- Five of the 24 General Science degree recipients enrolled in a course at Foothill and/or De Anza during fall 2016 term. Based on enrollment, it appears that 2 students are in the Respiratory Therapy program.

Table 4: 2015-16 General Science Degree Recipients who Enrolled in a Fall 2016 Course

		Enrollment
Foothill College		
AHS	F050A	2
BIOL	F012.	1
MATH	F010.	1
NCBS	F405.	1
NCLA	F406A	1
NCLA	F406B	1
PSYC	F040.	1
RSPT	F050A	2
RSPT	F051A	2
RSPT	F052.	2
RSPT	F054.	2
RSPT	F055A	2
Subtotal		18
De Anza College		
BIOL	D026.	1
Subtotal		1
Total		19

V. Declared General Studies: Science Major

- Of the students who enrolled during fall 2016 at Foothill, 243 have declared General Studies: Science as their major.



DEGREES, CERTIFICATES & TRANSFER PROGRAMS


Physical Sciences, Mathematics & Engineering Division
www.foothill.edu/psme
(650) 949-7259

General Studies - Science

(2015-2016)

Because of the increasingly technological nature of our society, science majors will find an impressive array of options and exciting opportunities. A science major can provide preparation for a career in fields related to biology, chemistry, mathematics, physics, astronomy or engineering.

Program Learning Outcomes

- Students will be able to integrate the various fields of science in order to critically evaluate and interpret scientific information.
- Students will be able to assess how relevant scientific information could be used to inform their own personal economic, political and social decisions.

Career Opportunities

There is a need for scientifically trained people in non-traditional areas such as marketing and sales, scientific information, patent law, and health and safety.

Units required for Major: 40

Degree Requirements:

- English proficiency: ENGL 1A, 1AH, 1S & 1T, ESLL 26 or equivalent.
- Mathematics proficiency: MATH 57, 105, 108 or equivalent.

A minimum of 90 units is required* to include:

- Completion of one of the following general education patterns: Foothill General Education, CSU General Education Breadth Requirements or the Intersegmental General Education Transfer Curriculum (IGETC)
- Core courses (40 units)

*Additional elective course work may be necessary to meet the 90-unit minimum requirement for the associate degree.

NOTE: All courses pertaining to the major must be taken for a letter grade. In addition, a GPA of 2.0 or higher is required in all core and support courses for the degree or certificates.

Program Type(s):

AS = Associate in Science Degree.

Additional Information:

NOTE: Courses used to meet the major requirements MAY be used to satisfy any graduation general education requirement.

Core Courses: (40 units)

Select **40 units** to represent **all FIVE** categories listed below.

Biology (20 units)

At least one course each from **Area A** and **Area B**. At least one course in this area must include a laboratory.

Area A:

- BIOL 1C* Evolution, Systematics & Ecology (6 units)
- BIOL 9 Environmental Biology (may be taken with BIOL 9L to satisfy laboratory requirement) (4 units)
- BIOL 9L Environmental Biology Laboratory (only if taken with BIOL 9) (1 unit)
- BIOL 10* General Biology: Basic Principles (5 units)
- BIOL 14* Human Biology (5 units)

*Course includes a laboratory component.

Area B:

- BIOL 1A* Principles of Cell Biology (6 units)
- BIOL 1B* Form & Function in Plants & Animals (6 units)
- BIOL 8 Basic Nutrition (5 units)
- BIOL 12 Human Genetics (4 units)
- BIOL 13* Marine Biology (5 units)
- BIOL 23 Introduction to Biotechnology (5 units)
- BIOL 40A* Human Anatomy & Physiology I (5 units)
- BIOL 40B* Human Anatomy & Physiology II (5 units)
- BIOL 40C* Human Anatomy & Physiology III (5 units)

BIOL 41* Microbiology (6 units)
 BIOL 45 Introduction to Human Nutrition (4 units)
 *Course includes a laboratory component.

Chemistry (5 units)

CHEM 1A General Chemistry (5 units)
 CHEM 1B General Chemistry (5 units)
 CHEM 1C General Chemistry & Qualitative Analysis (5 units)
 CHEM 9 Chemistry of Cooking (5 units)
 CHEM 12A Organic Chemistry (6 units)
 CHEM 12B Organic Chemistry (6 units)
 CHEM 12C Organic Chemistry (6 units)
 CHEM 20 I Matter: Introduction to Green Technology & the Environment (5 units)
 CHEM 25 Fundamentals of Chemistry (5 units)
 CHEM 30A Survey of Inorganic & Organic Chemistry (5 units)
 CHEM 30B Survey of Organic & Biochemistry (5 units)

Engineering/Computer Science/Astronomy/PSE (5 units)

ASTR 10A General Astronomy: Solar System (5 units)
 ASTR 10B General Astronomy: Star, Galaxies, Cosmology (5 units)
 or ASTR 10BH Honors General Astronomy: Stars, Galaxies, Cosmology (5 units)
 ASTR 10L Astronomy Laboratory (1 unit)
 ASTR 54H Honors Institute Seminar in Astronomy (1 unit)
 ASTR 77 Seminar on Exciting Topics in Astronomy (1 unit)
 C S 1A Object-Oriented Programming Methodologies in Java (5 units)
 or C S 1AH Honors Object-Oriented Programming Methodologies in Java (5 units)
 C S 1B Intermediate Software Design in Java (5 units)
 C S 1C Advanced Data Structures & Algorithms in Java (5 units)
 C S 2A Object-Oriented Programming Methodologies in C++ (5 units)
 or C S 2AH Honors Object-Oriented Programming Methodologies in C++ (5 units)
 C S 2B Intermediate Software Design in C++ (5 units)
 C S 2C Advanced Data Structures & Algorithms in C++ (5 units)
 C S 3A Object-Oriented Programming Methodologies in Python (5 units)
 C S 10 Computer Architecture & Organization (5 units)
 C S 21B Intermediate Python Programming (5 units)
 C S 49 Foundations of Computer Programming (2.5 units)
 C S 85A Ruby & Functional Programming (5 units)
 ENGR 6 Engineering Graphics (4 units)
 ENGR 10 Introduction to Engineering (5 units)
 ENGR 11 Programming & Problem Solving in MATLAB (5 units)
 ENGR 25 Introduction to Fresh Water (5 units)
 ENGR 28 Introduction to Bioengineering (4 units)
 or BIOL 28 Introduction to Bioengineering (4 units)
 ENGR 35 Statics (5 units)
 ENGR 37 Introduction to Circuit Analysis (5 units)
 ENGR 39 Energy, Society & the Environment (5 units)
 ENGR 40 Introduction to Clean Energy Technology (5 units)
 ENGR 45 Properties of Materials (5 units)
 ENGR 49 Engineering Profession (1 unit)
 ENGR 62A Introduction to 3D Printing & Rapid Prototype Design (4 units)
 ENGR 62B 3D Printing: Basic Model Making (5 units)
 ENGR 62C 3D Printing: Advanced Model Making (5 units)
 ENGR 62D 3D Rapid Model Making & Prototype Development (5 units)
 ENGR 81 Electric Power Systems (5 units)
 ENGR 82 Photo Voltaic & Solar Cell Design (5 units)
 ENGR 83 Smart Energy Systems (5 units)
 ENGR 83A Introduction to Biomedical Engineering (5 units)
 ENGR 83B Design & Manufacturing in the Biomedical Engineering Field (5 units)
 ENGR 83C Introduction to Medical Device Regulations (5 units)
 ENGR 83E Introduction to Documentation (5 units)
 ENGR 102 Building Science & Performance Engineering (5 units)
 PSE 51 Frontiers in Science (1 unit)

Mathematics (5 units)

MATH 1A Calculus (5 units)
 or MATH 1AH Honors Calculus I (5 units)
 MATH 1AHP Honors Calculus I Seminar (1 unit)
 MATH 1B Calculus (5 units)
 MATH 1C Calculus (5 units)
 MATH 1D Calculus (5 units)
 MATH 2A Differential Equations (5 units)
 MATH 2B Linear Algebra (5 units)
 MATH 10 Elementary Statistics (5 units)

MATH 11 Finite Mathematics (5 units)
MATH 12 Calculus for Business & Economics (5 units)
MATH 22 Discrete Mathematics (5 units)
or C S 18 Discrete Mathematics (5 units)
MATH 42 Math for Elementary School Teachers (5 units)
MATH 44 Math for the Liberal Arts (5 units)
MATH 48A Precalculus I (5 units)
MATH 48B Precalculus II (5 units)
MATH 48C Precalculus III (5 units)
MATH 54H Honors Institute Seminar in Mathematics (1 unit)

Physics (5 units)

PHYS 2A General Physics (5 units)
PHYS 2AM General Physics - Calculus Supplement (1 unit)
PHYS 2B General Physics (5 units)
PHYS 2BM General Physics - Calculus Supplement (1 unit)
PHYS 2C General Physics (5 units)
PHYS 2CM General Physics - Calculus Supplement (1 unit)
PHYS 4A General Physics (Calculus) (6 units)
PHYS 4B General Physics (Calculus) (6 units)
PHYS 4C General Physics (Calculus) (6 units)
PHYS 4D General Physics (Calculus) (6 units)
PHYS 6 Introductory Physics (5 units)
PHYS 12 Introduction to Modern Physics (5 units)
PHYS 54H Honors Institute Seminar in Physics (1 unit)

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