

Institute Undergraduate Curriculum Committee
Academic Matters, Appeal, & Petitions (Full Committee)
Minutes

Tuesday, September 6, 2016

Present: Mayor (ME), Scott (CEE), Pikowsky (Registrar), Coyle (ECE), Economou (CoD-ARCH), Eidson (Student Rep-UCC), Goodisman (BIOS-BIOL), LeBlanc (CoD-ARCH), Millard-Stafford (APPH), Moore (ECE), Parsons (CoB), Potts (Vice Provost), Shook (ML), Smith (ME), Wilkinson (CHEM & BCHEM), Zhou (ISYE)

Visitors: Hodges (Registrar), Ferri (ECE), Belton (ECON), Behravesh (BME), Young (INTA), Williams (ECE), Baird (OIE-IP), Realff (MSE), Bramblett (IRP/DSS), Spencer (BIOS-BIOL), Baker (MATH), Damron (MATH), Hammer (BIOS-BIOL), Kerr (BIOS-BIOL)

Note: All action items in these minutes require approval by the Academic Senate. In some instances, items may require further approval by the Board of Regents or the University System of Georgia. If the Regents' approval is required, the change is not official until notification is received from the Board to that effect. Academic units should take no action on these items until USG and/or BOR approval is secured. In addition, units should take no action on any of the items below until these minutes have been approved by the Academic Senate or the Executive Board. Notification or approval by the Southern Association of Colleges and Schools-CoC may also be required.

The presence of 12 voting members is needed to reach a quorum.

Note: All votes are unanimous unless specifically noted otherwise.

Administrative Item

1. Dr. David Scott (Chair of Gen Ed Subcommittee) presented a roster for the 2016-17 members of the General Education Subcommittee. Upon approval of the Minutes, the list will be sent to the Executive Board for final approval. The Executive Board approves the General Education Subcommittee list since there are non-IUCC members who serve on it. A motion was made to approve the membership of the General Education Subcommittee. The motion was seconded and approved.
2. Dr. Mike Goodisman (BIOS) and Dr. Athanassios Economou (ARCH) will be the Undergraduate Curriculum Committee representatives for the Study Abroad Committee. A motion was made to approve the membership of the Study Abroad Committee. The motion was seconded and approved.

Academic Items

1. Bonnie Ferri (ECE), Co-Chair of Commission to Create the Next in Education, gave a presentation on the Commission. The presentation included the findings and research completed as well as future plans at Georgia Tech.
2. A motion was made to *approve* a request from the School of International Affairs for a degree modification. The motion was seconded and approved.

Degree Modification – APPROVED UPON CONTINGENCIES

Bachelor of Science in International Affairs
Bachelor of Science in International Affairs and Modern Language
Bachelor of Science in Economics and International Affairs

The Sam Nunn School of International Affairs requests approval to modify the list of courses that may be taken to fulfill the technology requirement under Core Area F. This requirement calls for a technical elective to further develop appropriate technology skills.

The following courses should be deleted from the approved list:

- AE/CEE/ME 1770 Introduction to Engineering Graphics and Visualization
- ARCH 4420 Introduction to Design Computing
- BC 3630 Project Management I
- CHBE 2120 Numerical Methods in Chemical Engineering
- CS 1332 Data Structures and Algorithms
- CS 4235 Introduction to Information Security
- EAS 4430 Remote Sensing and Data Analytics
- EAS 4610 Earth Modeling Systems
- ECE 2030 Introduction to Computer Engineering
- ID 4103 Alias Studio I
- LMC 3404 Designing for the Internet
- MGT 4058 Database Management Systems
- MGT 4661 Database Management
- MUSI 4630 Music Recording and Mixing
- PHYS 3266 Computational Physics

The following courses should be added to the approved list:

- CS 2316 Data Input and Manipulation
- CS 2803 DWD Dynamic Web Development
- EAS 3110 Environment, Energy and Society
- EAS 4480 Environmental Data Analysis
- ECE 2020 Digital System Design

Note: The Committee requested the School to review the list of options for this Core F requirement to ensure that all courses offered were active.

Also, in order to align all degree programs at Georgia Tech to Board of Regents policies, it was requested that the 12 credits of INTA electives be considered as part of the major requirements as to ensure 21 hours of major requirements were being satisfied for the B.S in International Affairs degree. A note in the catalog for all degrees will reflect that 39 credits of 3000/4000-level coursework is required and 21 hours of 3000/4000-level coursework must come from the major requirements and additional hours may come from others (i.e., Non-Major Cluster, Modern Languages, Free electives, etc.).

3. A motion was made to *approve* a request from the Department of Biomedical Engineering to modify pre-requisites. The motion was seconded and approved.

MODIFY PRE-REQUISITES – ACKNOWLEDGED WITHOUT CONCERN

BMED 2310

BMED 2210 with minimum grade of C and
BMED 2250 with minimum grade of C and
PHYS 2211 with minimum grade of C

BMED 3110

BMED 3100 and
BMED 3400 and
(BMED 2400 or CEE/ISYE/MATH 3770) and
CS 1371

BMED 3310

BMED 2210 and
(MATH 2401 or 2411 or 24X1 or 2551 or 2561 or 2X51) and
(MATH 2403 or 2413 or 24X3 or 2552 or 2562 or 2X52) and
**CS 1371 and
PHYS 2211**

BMED 3400

MATH 2403 or 2413 or 24X3 or ~~2552~~ 2551 or 2562 or 2X52 or
COE 2001

BMED 3520

BMED 3100 and
BMED 2210 and
(MATH 2403 or 2413 or 24X3 or 2552 or 2562 or 2X52) and
CS 1371

4. A motion was made to *approve* a request from the School of Economics for a degree modification. The motion was seconded and approved.

The vote was not unanimous: 12 votes to approve, 0 to deny, 1 to abstain.

Degree Modification – APPROVED UPON CONTINGENCIES

Bachelor of Science in Economics

School of Economics proposes to limit the core courses to Econ 2105 Prin. Of Macro, Econ 2106 Prin. Of Micro, ECON 2250 Statistics for Economists, ECON 3110 Advanced Micro, ECON 3120 Advanced Macro, and ECON 3161 Econometrics.

The other courses formerly in the core namely ECON 1001 Economics at Work, ECON 4160 Forecasting, ECON 4610 Capstone, and ECON 4910 Senior Thesis will be moved to the elective list.

These changes will provide more flexibility in our curriculum and allow our students to take a more math intensive set of courses (if they desire to go to graduate school in Econ) or a more policy oriented and applied set of courses.

Also, a note to add to catalog pages for curriculum is that 39 hours of upper level (3000-/4000-level credit) must be completed and 21 hours of the requirement must be from major requirement courses. This is a Board of Regents requirement and may be met with a combination of major requirements, ECON electives, Non-Major Cluster courses and/or free electives.

Note: The Committee requested that the ECON electives be specified as needing to be 3000/4000-level as to satisfy the 39 and 21 hours of upper level credit BoR policy. Also, it was suggested that the ‘2nd tech course’ requirement be clarified. An update to the note attached to the requirement stated that The second tech course must be selected from: AE 1770 or CEE 1770 or CS 1316 or CS 1331 or CS 1332 or ECE 2030 or ME 1770 or ME 2016 or MGT 2200. An updated proposal for the degree requirements has been uploaded to the IUCC site.

Current Curriculum

Wellness

[APPH 1040](#)

Sci Foundation of Health

2

or [APPH 1050](#)

Sci of Phys Act & Health

Core A - Essential Skills

ENGL 1101	English Composition I	3
ENGL 1102	English Composition II	3
MATH 1712	Survey of Calculus	4
or MATH 1552	Integral Calculus	

Core B - Institutional Options

CS 1315	Intro Media Computation	3
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Core C - Humanities

Any HUM		6
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Core D - Science, Math, & Technology

Lab Science		4
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Lab Science		4
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MATH 1711	Finite Mathematics	4
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or MATH 1551 & MATH 1553	Differential Calculus and Intro to Linear Algebra	
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Core E - Social Sciences

Select one of the following:		3
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HIST 2111	United States to 1877	
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HIST 2112	United States since 1877	
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INTA 1200	American Government	
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POL 1101	Government of the U.S.	
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PUBP 3000	US Constitutional Issues	
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9

Any SS

Core F - Courses Related to Major

ECON 2105	Prin of Macroeconomics ³	3
ECON 2106	Prin of Microeconomics ³	3
ECON 2250	Statistics for Economist	3

INTA 1000- or 2000-level courses 3

Engineering or Science Elective ¹ 3

Second Tech Course ² 3

Major Requirements

ECON 1001	Economics at Work	1
ECON 3110	Adv Microeconomic Analys ³	3
ECON 3120	Advanced Macroeconomics ³	3
ECON 3161	Econometric Analysis ³	3
ECON 4160	Economic Forecasting ³	3
ECON 4610	Seminar-Economic Policy ³	3
ECON 4910	Individual Research ³	3

ECON Electives

Any ECON ³ 12

Non-Major Cluster

Non-Major Cluster ⁴ 12

Free Electives

Free Electives 16

Pass-fail only allowed for Free Electives.

- 1 1000- or 2000-level course from the College of Engineering or College of Sciences. Please consult with advisor.
- 2 Must be selected from: [AE 1770](#) or [CEE 1770](#) or [CS 1316](#) or [CS 1331](#) or [CS 1332](#) or [ECE 2030](#) or [ME 1770](#) or [ME 2016](#) or [MGT 2200](#).
- 3 Minimum grade of C required.
- 4 All twelve credit hours must come from the same discipline, or be part of a coherent theme. Please consult with advisor on course selection.

Proposed Approved Curriculum

Wellness

APPH 1040	Sci Foundation of Health	2
or APPH 1050	Sci of Phys Act & Health	

Core A - Essential Skills

ENGL 1101	English Composition I	3
ENGL 1102	English Composition II	3
MATH 1712	Survey of Calculus	4
or MATH 1552	Integral Calculus	

Core B - Institutional Options

CS 1315	Intro Media Computation	3
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Core C - Humanities

Any HUM		6
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Core D - Science, Math, & Technology

Lab Science		4
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Lab Science		4
MATH 1711	Finite Mathematics	4
or MATH 1551 & MATH 1553	Differential Calculus and Intro to Linear Algebra	
Core E - Social Sciences		
Select one of the following:		3
HIST 2111	United States to 1877	
HIST 2112	United States since 1877	
INTA 1200	American Government	
POL 1101	Government of the U.S.	
PUBP 3000	US Constitutional Issues	
Any SS		9
Core F - Courses Related to Major		
ECON 2105	Prin of Macroeconomics ³	3
ECON 2106	Prin of Microeconomics ³	3
ECON 2250	Statistics for Economist	3
INTA 1000- or 2000-level courses		3
Engineering or Science Elective ¹		3
Second Tech Course ²		3
Major Requirements		
ECON 1001	Economics at Work	1
ECON 3110	Adv Microeconomic Analys ³	3
ECON 3120	Advanced Macroeconomics ³	3

ECON 3161	Econometric Analysis ³	3
ECON 4160	Economic Forecasting ³	3
ECON 4610	Seminar-Economic Policy ³	3
ECON 4910	Individual Research ³	3
ECON Electives		
Any 3000/4000-level ECON	³	12 18
Non-Major Cluster		
Non-Major Cluster ⁴		12
Free Electives		
Free Electives		16 20
Total Credit Hours		122

Students must complete 39 hours of upper level (3000-/4000-level) courses which must include 21 hours of 3000/4000-level of major requirement (ECON) courses. The remaining hours may come from Non-Major Cluster and/or Free electives.

Pass-fail only allowed for Free Electives.

¹ 1000- or 2000-level course from the College of Engineering or College of Sciences. Please consult with advisor.

² **CS 1315 serves as the first tech course. The second tech course must be selected from: [AE 1770](#) or [CEE 1770](#) or [CS 1316](#) or [CS 1331](#) or [CS 1332](#) or [ECE 2030](#) or [ME 1770](#) or [ME 2016](#) or [MGT 2200](#).**

³ Minimum grade of C required.

⁴ All twelve credit hours must come from the same discipline, or be part of a coherent theme. Please consult with advisor on course selection.

5. A motion was made to *approve* a request from the Office of International Education – International Plan to offer new options for the International Plan degree plan. The motion was seconded and approved.

New Courses added to IP List - APPROVED

Georgia Tech's catalog contains a list of courses approved by the International Plan Committee (IPC) to satisfy International Plan (IP) globally-focused course requirements. IP students are asked to take one course from each of three categories: International Relations, Country/Region, and Global Economics, to satisfy these requirements. Periodically, the committee approves new courses for the list or removes courses from the list. We are asked to inform the UCC when changes occur.

At the February 11, 2016 IPC meeting, the IPC approved the following courses to satisfy the Country/Region course requirement and should be added to the IP's catalog list:

SPAN 3592	Culture and Commerce in the Andes
GRMN 4027	Political Songwriting in Germany, 1945 to Present
GRMN 4692	Americanization and Anti-Americanism in the Federal Republic of Germany
HTS 2051	Colonial Latin America and the World
RUSS 4692	Intensive Advanced Russian II
RUSS 4693	Intensive Advanced Russian III

- A motion was made to *approve* a request from the School of Electrical and Computer Engineering for pre-requisite modifications. The motion was seconded and approved.

Pre-requisite Changes – Acknowledged Without Concern

Additions and deletions noted in red.

ECE 2020

	CS 1371	C
OR	CS 1171	€
OR	CS 1301	C

ECE 2026

	(	MATH 1502	C	
OR	(	MATH 15X2		
AND	(	MATH 1522	C)
OR		MATH 1553	C)
)
OR		MATH 1512	C	
OR	(	MATH 1552	C	
AND	(	MATH 1553	C	
OR		MATH 1554	C	
OR		MATH 1564	C)
)
)
AND	(	CS 1371	C	

OR CS 1171 € Y)
~~OR CS 1372 C~~
~~OR ECE 2035 C Y~~
~~OR ECE 2036 C Y)~~

ECE 2031

(ECE 2020 C)
 OR ECE 2030 C)
 AND (ECE 2035 C Y)
 OR ECE 2036 C Y)
 OR CS 1372 C)
 OR CS 2110 C)

ECE 3006

ECE 2031 C

ECE 3040

(ECE 3043 C Y)
 OR ECE 3041 C)
 AND (ECE 2031 C)
 OR ECE 20X2)
 AND (ECE 2035 C)
 OR ECE 2036 C)
 AND ECE 2040 C)
 AND (CHEM 1310)
 OR CHEM 1211K)
 OR CHEM 12x1)
 AND (MATH 2401 C)
 OR MATH 2411 C)
 OR MATH 24X1 C)
 AND (MATH 2403 C)
 OR MATH 2413 C)
 OR MATH 24X3 €)
 OR MATH 2552 C)
 OR MATH 2562 C)
 OR MATH 2X52)

ECE 3043

ECE 3040 C Y
 AND (ECE 2031 C)
 OR ECE 20X2)

ECE 3056

(ECE 2031 C)
 OR ECE 20X2)
 AND (ECE 2035 C)
 OR ECE 3035 C)

ECE 3150

~~ECE 2020~~ C
ECE 2031 C
AND ECE 2040 C

ECE 3300

ECE 3025 C
~~AND ECE 3040~~ C

ECE 4011

(ECE 3025 C Y
AND ECE 3040 C
AND ECE 3043 C
AND ECE 3072 C
AND ECE 3084 C Y
OR ECE 3020 C
AND ECE 3030 C
AND ECE 3056 C)
AND (ECE 3005
~~OR ECE 3006~~ Y)
AND (ECON 2100
OR ECON 2101
OR ECON 2105
OR ECON 2106)
AND (CEE 3770
OR ISYE 3770
OR **MATH 3670**
OR MATH 3770
OR ECE 3077)

ECE 4012

ECE 4011 C
AND (ECE 3025 C
~~AND ECE 3072~~ C
AND ECE 3084 C
OR ECE 3020 C
AND ECE 3030 C)

ECE 4043

~~ECE 3040~~ C
AND ECE 3043 C

ECE 4110

ECE 3076
OR ECE 3600
OR CS 3251
~~OR CEE 3770~~
~~OR ISYE 3770~~

~~OR MATH 3770~~
~~OR ECE 3077~~

ECE 4112

ECE 3076
OR ECE 3600
OR ECE 4110
OR CS 3251

ECE 4130

ECE 3050
OR ECE 3060
OR ECE 3150
OR ECE 3400

ECE 4180

CS 1372 C
AND (ECE 3035 C
OR ECE 3055 C
OR ECE 3056 C)
OR (ECE 2031 C
OR ECE 20X2)
AND (ECE 2035 C
OR ECE 2036 C
OR ECE 3035 C)
AND (ECE 3040 C
OR ECE 3055 C
OR ECE 3056 C)

ECE 4185

(ECE 2031 C
OR ECE 20X2)
AND (ECE 3040 C
OR ECE 3055 C
OR ECE 3056 C
OR CS 3240
OR CS 3510)

ECE 4260

ECE 3084 C
AND (ECE 3077
OR ISYE 3770
OR MATH 3670
OR MATH 3770
OR CEE 3770)

ECE 4270		ECE 3075		Y
		ECE 3077		Y
	OR	ECE 3084	C	Y
	OR	ECE 4260		Y
ECE 4350		ECE 3025	C	
ECE 4360	(	ECE 3065		
	OR	ECE 4350)
	AND	ECE 4415		Y
ECE 4370		ECE 3025	C	
ECE 4390		ECE 3065		
	OR	ECE 4350		
ECE 4418		ECE 3025	C	
	AND	ECE 3400		
ECE 4420		ECE 3040	C	
	OR	ECE 3030	C	
ECE 4445	(	ECE 3040	C	
	OR	ECE 3741)
	AND	ECE 3084	C	
ECE 4460		ECE 3030	C	
	OR	ECE 3040	C	
	OR	ECE 3710		
ECE 4550	(	ECE 2031	C	
	OR	ECE 20X2)
	AND (	ECE 3550	C	
	OR	ECE 3085	C	
	OR	ECE 3084	C)

ECE 4555

OR ECE 3084 C
OR ECE 3085
OR ECE 3550

ECE 4560

OR ECE 3084 C
OR ECE 3085
OR ECE 3550

ECE 4601

~~ECE 3040 C Y~~
(~~ECE 3020 C~~
OR ~~ECE 3084 C~~)
AND (CEE 3770
OR ISYE 3770
OR MATH 3670
OR MATH 3770
OR ECE 3077)

ECE 4606

(ECE 2025 C
OR ECE 2026 C)
~~**AND** (ECE 3040 C Y~~
~~**OR** ECE 3710)~~
AND (ECE 3020 C
OR ECE 3084 C)
AND (CEE 3770
OR ISYE 3770
OR MATH 3670
OR MATH 3770
OR ECE 3077)

ECE 4754

OR ECE 3030 C
OR ECE 3040 C
OR ECE 3710

ECE 4781

OR ECE 3030 C
OR ECE 3040 C
OR ECE 3710

ECE 4782

OR BMED 3510
OR CHBE 4400
OR ECE 2040 C
OR ME 3015

OR ME 3017

ECE 4783

(ECE 2025 C
OR ECE 2026 C)
AND (MATH 3770 Y
OR ISYE 3770 Y
OR CEE 3770 Y
OR ECE 3077 Y
OR BMED 2400)

ECE 4784

ECE 3030 C
OR ECE 3040 C
OR BMED 3510

7. A motion was made to *approve* a request from the School of Materials Science and Engineering to deactivate courses. The motion was seconded and approved.

DEACTIVATE COURSES – APPROVED

- MSE 1001
- MSE 3000
- MSE 3020
- MSE 4021
- MSE 2020
- MSE 3003
- MSE 4020
- MSE 4777

A motion was made to *approve* a request from the School of Materials Science and Engineering to create new courses. The motion was seconded and approved.

NEW COURSES – APPROVED UPON CONTIGENCIES

MSE 4320 Industrial Controls in Manufacturing 3-0-3
MSE 4759 Electrochemical Energy Storage and Conversion 3-0-3

Note: A correction on the NCP will be reflected to indicate that MSE 4320 is not repeatable. An updated NCP has been uploaded to the IUCC site. Also, a correction is needed for MSE 4759 as the Expected Mode of Presentation totaled over 100%. It was also noted that the syllabus refers to the ADAPTS office. This should be reflected to refer instead to the Office of Student Disability Services, the new name of the unit. An updated NCP has been uploaded to the IUCC site.

A motion was made to *approve* a request from the School of Materials Science and Engineering for a degree modification. The motion was seconded and approved.

DEGREE MODIFICATION – APPROVED
Bachelor of Science in Materials Science and Engineering

The cross-listed MSE (PTFE)/ECE 4761, 2-3-3, was implemented in the mid-90’s by two former faculty members in then PTFE and ECE (Prof. Lew Dorrity was the PTFE lead). Initially the course was equally taught, and the lab component was conducted in an ECE laboratory equipped to handle the experiments. However, after Prof. Dorrity left GIT in 2003 followed by the ECE partner, PTFE and then MSE assumed total teaching responsibility for the 4761 course, and the access to the ECE laboratory facility was lost. Currently, the laboratory component of the course has become untenable, with MSE’s Prof. Donggang Yao conducting only two experiments with the class on inadequate equipment in his research laboratory. ECE still allows the course as an elective, but does not include it in the core curriculum. The request is thus to drop the MSE 4761 2-3-3 course and by expanding the lecture portion, convert it into a 3-0-3 format with a new number, **MSE 4230, Industrial Controls in Manufacturing**. The ABET syllabus for the proposed MSE 4230 is attached. As currently with MSE 4761, MSE 4230 will be included in the optional course listings of all three MSE curriculum Concentrations: Structural & Functional Materials, Polymer & Fiber Materials and Biomaterials.

Proposed vs Current Structural & Functional Materials Concentration

<http://www.catalog.gatech.edu/colleges/coe/mse/ugrad/bsmse/bsmse-sfm.php>

BS in Materials Science and Engineering - Structural & Functional Materials 2017-18 Degree Requirements

REQUIREMENT	REQ HRS	COURSE(S)	NOTES
Wellness	2	APPH 1040 or APPH 1050	
Core A - Essential Skills	3	ENGL 1101	
	3	ENGL 1102	
	4	MATH 1501	
Core B - Institutional Options	3	CS 1371	
Core C - Humanities	6	Any HUM	
Core D - Science, Math, & Technology	4	PHYS 2211	a
	4	PHYS 2212	b
	4	MATH 1502	
Core E - Social Sciences	3	HIST 2111 or HIST 2112 or INTA 1200 or POL 1101 or PUBP 3000	
	3	ECON 2100 or ECON 2105 or ECON 2106	

	6	Any SS	
Core F - Courses Related to Major	4	CHEM 1211K	
	4	CHEM 1212K	
	3	CHEM 1315	
	4	MATH 2401	
	4	MATH 2403	
	--	Ethics Requirement	e
Major Requirements	1	MSE 1111	
	3	MSE 2001	
	4	MSE 2021	
	3	MSE 3001	
	3	MSE 3002	
	3	MSE 3005	
	3	MSE 3015	
	2	MSE 3021	
	3	MSE 3025	
	3	MSE 3210	
	2	MSE 4022	
	3	MSE 4410	
	3	MSE 4420	
	3	MSE 4775	
Non-Major Requirements	2	COE 2001	
	3	COE 3001	
	2	ECE 3710	
	1	ECE 3741	
	1	ISYE 3025	
Structural & Functional Materials Concentration	3	MSE 4002	
	3	MSE 4006	
	3	MSE 4010	
	6	MSE 3012 or MSE 3220 or MSE 3225 or MSE 3230 or MSE 4004 or MSE 4025 or MSE 4140 or MSE 4330 or MSE 4335 or MSE 4751 or MSE 4754 or MSE 4755 or MSE 4761 MSE 4230 or MSE 4791 or MSE 4793	
Free Electives	4	Free Electives	d
TOTAL:	132		

Pass-fail only allowed for Free Electives, Humanities, and Social Sciences.

Notes	
a =	If PHYS 2231 is taken, extra hour goes to Free Electives.
b =	If PHYS 2232 is taken, extra hour goes to Free Electives.
d =	MATH 1113 are not allowed.

e = Allow CS 4001 or CS 4002 or HTS 2084 or HTS 3032 or INTA 2030 or LMC 3318 or PHIL 3105 or PST 3105 or PHIL 3109 or PST 3109 or PHIL 3127 or PST 3127 or PHIL 4176 or PST 4176 or PUBP 3600

Polymer & Fiber Materials Concentration

<http://www.catalog.gatech.edu/colleges/coe/mse/ugrad/bsmse/bsmse-pfm.php>

BS in Materials Science and Engineering - Polymer & Fiber Materials 2017-18 Degree Requirements

REQUIREMENT	REQ HRS	COURSE(S)	NOTES
Wellness	2	APPH 1040 or APPH 1050	
Core A - Essential Skills	3	ENGL 1101	
	3	ENGL 1102	
	4	MATH 1501	
Core B - Institutional Options	3	CS 1371	
Core C - Humanities	6	Any HUM	
Core D - Science, Math, & Technology	4	PHYS 2211	a
	4	PHYS 2212	b
	4	MATH 1502	
Core E - Social Sciences	3	HIST 2111 or HIST 2112 or INTA 1200 or POL 1101 or PUBP 3000	
	3	ECON 2100 or ECON 2105 or ECON 2106	
	6	Any SS	
Core F - Courses Related to Major	4	CHEM 1211K	
	4	CHEM 1212K	
	3	CHEM 1315	
	4	MATH 2401	
	4	MATH 2403	
	--	Ethics Requirement	e
Major Requirements	1	MSE 1111	
	3	MSE 2001	
	4	MSE 2021	
	3	MSE 3001	
	3	MSE 3002	
	3	MSE 3005	
	3	MSE 3015	
	2	MSE 3021	
	3	MSE 3025	
	3	MSE 3210	

	2	MSE 4022	
	3	MSE 4410	
	3	MSE 4420	
	3	MSE 4775	
Non-Major Requirements	2	COE 2001	
	3	COE 3001	
	2	ECE 3710	
	1	ECE 3741	
	1	ISYE 3025	
Polymer & Fiber Materials Concentration	3	ME 3340	
	3	MSE 3225	
	3	MSE 3230	
	3	MSE 4140	
	3	MSE 3220 or MSE 4025 or MSE 4761 MSE 4230	
Free Electives	5	Free Electives	d
TOTAL:	132		

Pass-fail only allowed for Free Electives, Humanities, and Social Sciences.

Notes	
a =	If PHYS 2231 is taken, extra hour goes to Free Electives.
b =	If PHYS 2232 is taken, extra hour goes to Free Electives.
d =	MATH 1113 are not allowed.
e =	Allow CS 4001 or CS 4002 or HTS 2084 or HTS 3032 or INTA 2030 or LMC 3318 or PHIL 3105 or PST 3105 or PHIL 3109 or PST 3109 or PHIL 3127 or PST 3127 or PHIL 4176 or PST 4176 or PUBP 3600

Biomaterials Concentration

<http://www.catalog.gatech.edu/colleges/coe/mse/ugrad/bsmse/bsmse-b.php>

BS in Materials Science and Engineering - Biomaterials 2017-18 Degree Requirements

REQUIREMENT	REQ HRS	COURSE(S)	NOTES
Wellness	2	APPH 1040 or APPH 1050	
Core A - Essential Skills	3	ENGL 1101	
	3	ENGL 1102	
	4	MATH 1501	
Core B - Institutional	3	CS 1371	

Options			
Core C - Humanities	6	Any HUM	
Core D - Science, Math, & Technology	4	PHYS 2211	a
	4	PHYS 2212	b
	4	MATH 1502	
Core E - Social Sciences	3	HIST 2111 or HIST 2112 or INTA 1200 or POL 1101 or PUBP 3000	
	3	ECON 2100 or ECON 2105 or ECON 2106	
	6	Any SS	
Core F - Courses Related to Major	4	CHEM 1211K	
	4	CHEM 1212K	
	3	CHEM 1315	
	4	MATH 2401	
	4	MATH 2403	
	--	Ethics Requirement	e
Major Requirements	1	MSE 1111	
	3	MSE 2001	
	4	MSE 2021	
	3	MSE 3001	
	3	MSE 3002	
	3	MSE 3005	
	3	MSE 3015	
	2	MSE 3021	
	3	MSE 3025	
	3	MSE 3210	
	2	MSE 4022	
	3	MSE 4410	
	3	MSE 4420	
	3	MSE 4775	
Non-Major Requirements	2	COE 2001	
	3	COE 3001	
	2	ECE 3710	
	1	ECE 3741	
	1	ISYE 3025	
Biomaterials Concentration	4	BIOL 1510	
	3	MSE 4002	
	3	MSE 4006	
	3	MSE 4751	
	3	MSE 3012 or MSE 3220 or MSE 3225 or MSE 3230 or MSE 4004 or MSE 4010 or MSE 4025 or MSE 4140 or MSE 4330 or MSE 4335 or MSE 4754 or MSE 4755 or MSE 4761 MSE 4230 or MSE 4791 or MSE 4793	

Free Electives	4	Free Electives	d
TOTAL:	132		

Pass-fail only allowed for Free Electives, Humanities, and Social Sciences.

Notes
a = If PHYS 2231 is taken, extra hour goes to Free Electives.
b = If PHYS 2232 is taken, extra hour goes to Free Electives.
d = MATH 1113 are not allowed.
e = Allow CS 4001 or CS 4002 or HTS 2084 or HTS 3032 or INTA 2030 or LMC 3318 or PHIL 3105 or PST 3105 or PHIL 3109 or PST 3109 or PHIL 3127 or PST 3127 or PHIL 4176 or PST 4176 or PUBP 3600

- A motion was made to *approve* a request from the School of Mechanical Engineering to create a new course. The motion was seconded and approved.

NEW COURSE – APPROVED

ME 4759 Electrochemical Energy Storage and Conversion 3-0-3

- A motion was made to *approve* a request from the School of Biological Sciences, Chemistry & Biochemistry, Physics, and Psychology for a new interdisciplinary minor. The motion was seconded and approved.

The vote was not unanimous: 11 to approve, 0 to deny, and 1 to abstain.

NEW MINOR – APPROVED WITH CONTINGENCIES

Minor in Health & Medical Sciences

The Health & Medical Sciences Minor is primarily geared towards students interested in pre-professional health programs or careers in medical research. The purpose of the Health & Medical Sciences Minor is to allow students with interests in a variety of fields, including medicine, exercise science, dentistry, optometry, health-related research, veterinary medicine, health informatics, pharmacy, nursing, and other allied health sciences to gain basic knowledge of the science surrounding health that will prepare them for future careers. An advisor in the College of Sciences will be designated as the Health & Medical Sciences Minor advisor. The advisor will work with a group of advisors throughout the college, as well as a committee consisting of a faculty member from each of the parent Schools, which include the School of Applied Physiology, School of Biology, School of Chemistry & Biochemistry, School of Physics, and School of Psychology, on all aspects of advisement, assessment, and oversight.

The Health & Medical Sciences Minor is designed to provide students with flexibility to pursue their interests while ensuring that students are exposed to a diversity of subject areas. Therefore, to complete the 15 credit Health & Medical

Sciences Minor, students will be required take a minimum of 9 credits of classes from at least two schools other than their home school (i.e., classes with School designators--APPH, BIOL, CHEM, PHYS, PSYC-- other than their major School designator) and a maximum of 6 credits from their home unit. All classes used to fulfill the Health & Medical Sciences Minor must be chosen from the approved list of health-related courses (Appendix I – see below for list of courses).

The following information was added post-meeting to respond to questions raised during the discussion at the meeting.

An advisor in the College of Sciences will be designated as the HMSM advisor. The advisor will work with a group of advisors throughout the college, as well as the HMSM Committee consisting of a faculty member from each of the parent Schools, which include the School of Applied Physiology, School of Biology, School of Chemistry & Biochemistry, School of Physics, and School of Psychology. The HMSM Committee will be responsible for all aspects of advisement, assessment, and oversight of the HMSM minor. In addition, the HMSM Committee will initiate and implement any modifications to the HMSM.

In order to ensure that the minor suits the specific needs of the individual student, advising will be mandatory at the time a student declares intention to pursue the HMSM. The HMSM website will clearly indicate that all students wishing to complete the HMSM must meet with the HMSM adviser at the time a student declares intention to pursue the HMSM. The HMSM adviser will also provide information on the types of classes that students should consider taking given their specific career path: pre-med, pre-vet, pre-dent, pre-PhD, etc.

We expect that the HMSM advisor will be able to handle the project advisement load as part of their regular duties within the College of Sciences. While the minor remains small in scope, the School of Biological Sciences will support this advisement effort on behalf of the College of Sciences. As the HMSM grows to larger numbers of advisees, HMSM Committee will coordinate with the College of Sciences to identify other advisers within the College of Sciences who will be able to assist with the advising effort. In the event that the number of students pursuing the minor exceeds the College's advisement capacity, the College will temporarily put in place a formal application to enter into the minor, as is the case for the Minor in Leadership Studies or Minor in Computer Science, until additional advisement support can be confirmed.

In addition, as is the case for all GT minors, the Health & Medical Sciences Minor must include at least 9 semester hours of courses numbered 3000 or above, courses used to satisfy Core Areas A through E in a student's major degree program cannot also be used to satisfy the course requirements for the minor, a maximum of 6 semester hours of approved Special Topics courses may be

included in the Health & Medical Sciences Minor or the student may complete 3 semester hours of Special Topics and 3 semester hours of either Special Problems or Undergraduate Research (which would need to be pre-approved as appropriately health-related by the minor adviser), a maximum of 3 semester hours of transfer credit may be used to satisfy the requirements for the minor, and all courses counting toward the minor must be taken on a letter-grade basis. Examples of how students from various majors could fulfill the Health & Medical Sciences Minor are provided in the proposal.

Note added in proof: On February 22, 2016, the College of Sciences announced that the Schools of Biology and Applied Physiology would merge. We have developed a plan to accommodate changes to the Health & Medical Sciences Minor arising from this merger. During the merger transition period, classes with APPH field codes will still be considered as originating from a separate School. If, and when, courses with APPH field codes get converted to BIOL field codes, then those courses will be considered as School of Biology courses. The overall effect is that the Health & Medical Sciences Minor will include fewer Schools but the same number of courses.

For a course to be counted towards the Health & Medical Sciences Minor, the student will need to earn a C or better.

Note: This information was added post meeting for further clarification. Students may be allowed to count up to six credits in the Health and Medical Sciences Minor towards their major. However, these courses must come from a block or blocks of courses that are: (1) designated by their major school as allowable to satisfy the course requirements in both the student's major degree program and an interdisciplinary minor, and (2) outside of the student's major field of study.

For instance, a Biochemistry major may not use a "CHEM" course towards these 6 credits but may use a BIOL course that the School of Chemistry and Biochemistry has designated as allowable.

The following courses may be used for the Health & Medical Sciences minor (from Appendix I in proposal):

APPH	BIOL	CHEM & BCHM	PHYS	PSYC
APPH 2500	BIOL 1510	CHEM 1211K	PHYS 2211	PSYC 1101
APPH 2699	BIOL 1511	CHEM 1212K	PHYS 2212	PSYC 2103
APPH 3000	BIOL 1520	CHEM 1310	PHYS 2213	PSYC 2210
APPH 3500	BIOL 1521	CHEM 1315	PHYS 2231	PSYC 2230
APPH 3753	BIOL 2344	CHEM 2311	PHYS 2232	PSYC 2699
APPH 3754	BIOL 2345	CHEM 2312	PHYS 2699	PSYC 2760
APPH 3755	BIOL 2354	CHEM 2699	PHYS 4251	PSYC 3012
APPH 3756	BIOL 2355	CHEM 3511	PHYS 4699	PSYC 3020
APPH 4100	BIOL 2699	CHEM 4511		PSYC 3040
APPH 4200	BIOL 3380	CHEM 4512		PSYC 3790

APPH 4400	BIOL 3381	CHEM 4521		PSYC 4010
APPH 4600	BIOL 3450	CHEM 4581		PSYC 4090
APPH 4699	BIOL 3451	CHEM 4582		PSYC 4100
	BIOL 3753	CHEM 4760		PSYC 4260
	BIOL 3754	CHEM 4765		PSYC 4699
	BIOL 3755	CHEM 4699		
	BIOL 3756			
	BIOL 4012			
	BIOL 4015			
	BIOL 4340			
	BIOL 4446			
	BIOL 4464			
	BIOL 4471			
	BIOL 4480			
	BIOL 4545			
	BIOL 4570			
	BIOL 4607			
	BIOL 4650			
	BIOL 4668			
	BIOL 4752			
	BIOL 4699			

Notes: The Committee requested the following updates:

- Add a statement on how advisement might be handled if the number of students seeking the minor grows beyond the projections. The IUCC expressed concern that there be a plan for how the School would adjust advising resources if that becomes necessary.
- Add a clear statement that advisement is mandatory before a student submits the minor declaration form to the Registrar's Office. As an example, CS has some similar language on their program of study form that makes it clear the advisor has to fill in the information.
- Make it clear that consultation with the academic advisor would be important for the student to keep on track for whatever pre-health career he/she wishes to pursue.
- Add a statement about how modifications to this minor would be handled. Would any of the participating units be able to request a modification? Would BIOS request it as the lead unit? In either case, we would require signatures from all participating units. Since this is an interdisciplinary minor and calls for other units to contribute, any changes to it could be done with BIOS as the lead, but all would have to sign off on the proposal.

It was also discussed that adding this information to the *Catalog* might discourage students from taking the classes THEN deciding to declare the minor. The RO can work with you on where that statement would appear. And, BIOS could also add the statement to their website.

There was concern expressed at the IUCC meeting that if a student met the requirements as stated in the *Catalog* and then came in and declared the minor

after the fact, on what basis would we deny award of the minor? Advisement didn't occur, but the minor requirements were met. There was a suggestion for a supplemental advising form, but that was abandoned at the meeting. There was also discussion about putting a hold on registration, but that was rejected by the Committee.

10. A motion was made to *approve* a request from the School of Biological Sciences to allow Biology to participate in the BS/MS program. The motion was seconded and approved.

NEW TRACK/OPTION – APPROVED

BS/MS program (BSBIO/MSBIO)

A combined BS/MS program in BIO would address a number of challenges faced by the School of Biology. For example it would...

- better serve our students by providing a MS degree to highly-qualified Biology undergrads in half the time of our standard program (and therefore at half the cost). It would enable students who otherwise might not get a Master's degree to compete better on the job market and will provide a degree that recognizes the research accomplishments of highly motivated students. It would also get those who would pursue a MS degree into the job market a year earlier, reducing their opportunity costs.
- improve the quality and increase the quantity of the MS-BIOL candidate pool. Note also that, with increased student quality comes better job placement, more loyal alumni, and a better network for career/internship placement and policy-linkages.

Responses to Potential Concerns:

- *How much would this cost the School of Biology?:* Implementation of a BS/MS option in the School of Biology may add some additional administrative costs, but these should be minimal. No additional courses or faculty will be needed. Students who are likely to pursue the BS/MS in Biology are active in research and will be advised by their lab supervisor. In order to minimize any additional administrative costs, the School will ensure that advising of these students from both the undergraduate and graduate sides of the program is closely coordinated and that oversight of the program itself is a shared function of both the undergraduate and graduate programs within the School.

Over a dozen units at Georgia Tech currently offer a 5-year BS/MS, including¹:

¹ <http://www.catalog.gatech.edu/students/ugrad/degrees/fiveyear.php>
Undergraduate Curriculum Committee
Minutes, September 06, 2016
9/28/2016 1:10 PM

• Aerospace Engineering	• Computer Engineering	• Nuclear & Radiological Engineering
• Chemical & Biomolecular Engineering	• Environmental Engineering	• Public Policy
• Civil Engineering	• International Affairs	• Science, Technology, and Culture/Digital Media
• Computational Media & Digital Media	• Materials Science Engineering	
• Electrical Engineering	• Mechanical Engineering	

BIO BS/MS Degree Eligibility Requirements

Students with an interest in research and a GPA of 3.3 or higher in courses required for the BS in Biology are eligible to apply for the program after completion of 30 semester credits, but before the completion of 90 semester credit hours, including transfer and advanced placement credits. Students who have more than 90 credit hours will be considered for the program on a case-by-case basis. Admissions decisions will be based on GPA and judgments of the Graduate Committee and faculty who have served as advisors or instructors. Continuation in the program will require the student to maintain a GPA of 3.0 or higher in Biology courses. The program will not penalize students who opt out after the bachelor's degree.

The BS/MS degree program in Biology would require the following in the BS degree, all in the fourth year of a typical degree program:

BS/MS Requirements

Current Course	Current Credit	Proposed Course	Proposed Credit
<i>Fourth Year – Fall</i>			
Biol 4590/4690/4910: Senior Research Experience	3	Biol 4690/4699/4910: Independent research or Senior Research Experience	3
Biology Electives	6	Biology Electives Biology graduate coursework	3 3
<i>Fourth Year – Spring</i>			
Biology Electives	3	Biology graduate coursework	3

A motion was made to *approve* a request from the School of Biological Sciences for a pre-requisite modification. The motion was seconded and approved.

PRE-REQUISITE MODIFICATION – ACKNOWLEDGED WITHOUT CONCERN

BIOL 1511 Honors Biological Principles

Current Restrictions

May not be enrolled in Graduate Semester

Must be enrolled in Atlanta Campus

Current Pre-requisites

Biology 4 or

IB Biology-HL 4 or

BIOL 1520 minimum grade of B or

BIOL 1521 minimum grade of B

Proposed Pre-requisites

None

Proposed Restrictions

Biology majors only

Note: There was initial concern about the course continuing to carry the same title which includes “Honors” although it is no longer associated with the Honors Program. The School of Biological Sciences explained they will be coming forth with several curriculum changes including new course proposals and wanted to refrain from proposing BIOL 1511 as a new course for the time being, but it would be a course included in the future updates. At that time, the title, including the word “Honors” will be addressed.

11. A motion was made to *approve* a request from the School of Mathematics for a pre-requisite modification. The motion was seconded and approved.

PRE-REQUISITE MODIFICATION – ACKNOWLEDGED WITHOUT CONCERN

MATH 1555

Current Pre-requisite

(MATH 1550 or 1551 or 1501 or 15X1) and (MATH 1553 or 1554 or 1564 or 1522)

Proposed Pre-requisite

MATH 1550 or 1551 or 1501 or 15x1

A motion was made to *table* a request from the School of Mathematics to create new courses. The motion was seconded and tabled.

NEW COURSES – TABLED

MATH 3235: Introduction to Probability

3-0-3

Note: The Committee agreed that the School of Mathematics could bring these courses back to the September 20 meeting. The Committee suggested an edit to the titles as they are more in-depth and rigorous courses than what currently exists in Math for probability and statistics. It was also noted that the difference in difficulty and depth of courses should be illustrated on the NCP in Boxes #4 and #5.

Adjourned,
Reta Pikowsky, Registrar
Secretary