EP.21.100 March 29, 2021

University of Illinois Urbana-Champaign Senate

COMMITTEE ON EDUCATIONAL POLICY (Final; Information)

EP.21.100 Report of Administrative Approvals through March 29, 2021

Senate committees are authorized to act for and in the name of the Senate on minor matters. Below is a listing of the administrative approvals the Senate Committee on Educational Policy approved at its meeting on April 5, 2021. Additional information for each approval is attached.

A. <u>Undergraduate Programs</u>

- 1) Computer Engineering, BS update the list of required Foundational Mathematics and Science courses to *remove* CHEM 102, General Chemistry I (3 hours), CHEM 103, General Chemistry Lab I (1 hour), and MATH 286, Intro to Differential Eq plus (4 hours) and *add* MATH 257, Linear Algebra with Computational Applications (3) or MATH 416, Abstract Linear Algebra (3 hours) and MATH 285, Intro Differential Equations (3 hours). Total hours of Foundational Mathematics and Sciences decreases from 31 to 29 hours. Technical Electives required increase from 27 to 29 hours, and the following courses are added as options from which students can choose to fulfill these 29 hours of Technical Electives: CHEM 102, General Chemistry I (3 hours), CHEM 103, General Chemistry Lab (1 hour), ATMS 201, General Physical Meteorology (3 hours), CPSC 265, Genetic Engineering Lab (3 hours), and PSYC 204, Intro to Brain and Cognition (3 hours). MATH 415, Applied Liner Algebra (3 or 4 hours) is removed from the list of Technical Electives. These changes better calibrate requirements for this program with the Computer Science program and is in alignment with ABET accreditation requirements. There is no change in total hours required.
- 2) Electrical Engineering, BS update the list of required Foundational Mathematics and Science courses to remove MATH 286, Intro to Differential Eq plus (4 hours) and add MATH 257, Linear Algebra with Computational Applications (3) or MATH 416, Abstract Linear Algebra (3 hours) and MATH 285, Intro Differential Equations (3 hours). Total hours of Foundational Mathematics and Sciences decreases from 31 to 29 hours. Technical Electives required increase from 27 to 29 hours, and the following courses are added as options from which students can choose to fulfill these 29 hours of Technical Electives: CHEM 102, General Chemistry I (3 hours), CHEM 103, General Chemistry Lab (1 hour), ATMS 201, General Physical Meteorology (3 hours), CPSC 265, Genetic Engineering Lab (3 hours), and PSYC 204, Intro to Brain and Cognition (3 hours). MATH 415, Applied Liner Algebra (3 or 4 hours) is removed from the list of Technical Electives. These changes better calibrate requirements for this program with the Computer Science program and is in alignment with ABET accreditation requirements. There is no change in total hours required.

B. **Graduate Programs**

1) Business Analytics, MS – in the list of Analytics Electives, from which students are required to take 20-24 hours, remove BADM 502, Communicating with Data and Decision Making (2 hours), and BADM 543, Technology Strategy (2 or 4 hours) and add BADM 550, Business Practicum (0-4 hours). Change the range

- of General Graduate Electives such that students are to select 0 to 4 hours rather than 0 to 8 hours to meet the minimum required 36 hours. There is no change in total hours required.
- 2) Corporate Governance & International Business Concentration add the MS Management program to a list of programs eligible to pursue this concentration. There are no revisions to the concentration itself and no change in hours required for the concentration or the MS Management degree program.
- 3) Information Technology & Control Concentration remove BADM 556, Electronic Commerce (4 hours) as a concentration-required course. Add BADM 562, Social Media Strategy (4 hours) to the list of courses from which students are to select to reach the minimum of 12 required for the concentration. There is no change to total hours required.
- 4) Supply Chain Management Concentration revise the list of courses from which students are to select to reach the minimum of 12 required for the concentration to *remove* BADM 560, Planning and Control Systems (4 hours); BADM 590, Seminar in Business Admin, Section OM (0 to 4 hours); and BADM 590, Seminar in Business Admin, Section SS (0 to 4 hours) and *add* BADM 564, Business Process Improvement (4 hours); BADM 565, Strategic Sourcing (4 hours); and BADM 575, Supply Chain Analytics (4 hours). There is no change to total hours required.
- 5) Business Data Analytics Concentration revise the requirements to specifically require BADM 554, Enterprise Database Management (4 hours); FIN 510, Big Data Analytics in Finance for Predictive and Causal Analysis (4 hours); and BDI 513, Data Storytelling (4 hours). Remove the choose-from list from which students selected 12 hours from BADM 554 (now specifically required), BADM 557, Business Intelligence (4 hours); BADM 562, Social Media Strategy (4 hours); BADM 571, Digital Business & IT Strategy (4 hours); BADM 573, Decision Analytics (4 hours); and BADM 577, Predictive Data Analytics (4 hours). Remove the note that course substitutions may be approved by the Department of Business Administration. There is no change to total hours required.

10KP0109BS: COMPUTER ENGINEERING, BS

In Workflow

- 1. U Program Review (dforgacs@illinois.edu; eastuby@illinois.edu; aledward@illinois.edu)
- 2. 1933 Head (b-hajek@illinois.edu; oelze@illinois.edu; erhan@illinois.edu)
- 3. KP Committee Chair (bsnewell@illinois.edu; danko@illinois.edu; kcp@illinois.edu; jmakela@illinois.edu)
- 4. KP Dean (candyd@illinois.edu)
- 5. University Librarian (jpwilkin@illinois.edu)
- 6. Provost (kmartens@illinois.edu)
- 7. Senate EPC (bjlehman@illinois.edu; moorhouz@illinois.edu; kmartens@illinois.edu)
- 8. Senate (jtempel@illinois.edu)
- 9. U Senate Conf (none)
- 10. Board of Trustees (none)
- 11. IBHE (none)
- 12. DMI (eastuby@illinois.edu; aledward@illinois.edu; dforgacs@illinois.edu)

Approval Path

- 1. Wed, 24 Feb 2021 21:58:49 GMT
 - Deb Forgacs (dforgacs): Approved for U Program Review
- 2. Wed, 24 Feb 2021 22:01:11 GMT
 - E Kudeki (erhan): Approved for 1933 Head
- 3. Tue, 09 Mar 2021 19:52:05 GMT
 - Brooke Newell (bsnewell): Approved for KP Committee Chair
- 4. Tue, 09 Mar 2021 19:52:23 GMT
 - Candy Deaville (candyd): Approved for KP Dean
- 5. Tue, 09 Mar 2021 20:22:10 GMT
 - John Wilkin (jpwilkin): Approved for University Librarian
- 6. Wed, 10 Mar 2021 21:48:10 GMT
 - Kathy Martensen (kmartens): Rollback to KP Dean for Provost
- 7. Wed, 10 Mar 2021 21:52:31 GMT
 - Candy Deaville (candyd): Rollback to KP Committee Chair for KP Dean
- 8. Thu, 18 Mar 2021 20:23:34 GMT
 - Brooke Newell (bsnewell): Approved for KP Committee Chair
- 9. Thu, 18 Mar 2021 20:29:32 GMT
 - Candy Deaville (candyd): Approved for KP Dean
- 10. Thu, 18 Mar 2021 20:31:31 GMT
 - John Wilkin (jpwilkin): Approved for University Librarian
- 11. Mon, 22 Mar 2021 18:57:44 GMT
 - Kathy Martensen (kmartens): Approved for Provost

History

- 1. Apr 24, 2019 by Deb Forgacs (dforgacs)
- 2. Aug 12, 2019 by Deb Forgacs (dforgacs)
- 3. Feb 26, 2020 by Brooke Newell (bsnewell)
- 4. Mar 31, 2020 by Deb Forgacs (dforgacs)
- 5. Apr 14, 2020 by Deb Forgacs (dforgacs)

Date Submitted:Tue, 23 Feb 2021 22:09:27 GMT

Viewing: 10KP0109BS: Computer Engineering, BS

Changes proposed by: E Kudeki

Proposal Type

Brooke Newell

Proposal Type:
Major (ex. Special Education)
This proposal is for a:
Revision
Proposal Title:
If this proposal is one piece of a multi-element change please include the other impacted programs here.example: A BS revision with multiple concentration revisions
Administrative approval: Minor revision in Computer Engineering BS curriculum: Updating courses in the Foundational Mathematics and Science requirements and the Technical Electives list.
EP Control Number
EP21.100
Official Program Name
Computer Engineering, BS
Effective Catalog Term
Fall 2021
Sponsor College
Grainger College of Engineering
Sponsor Department
Electrical and Computer Engineering
Sponsor Name
Erhan Kudeki
Sponsor Email
erhan@illinois.edu
College Contact

College Contact Email

bsnewell@illinois.edu

Program Description and Justification

Justification for proposal change:

The proposal is for:

- 1) Replacing MATH 286 by the sequence of (MATH 257 or MATH 416) and MATH 285,
- 2) Removing CHEM 102/103 as a required course, and
- 3) Adding CHEM 102/103, ATMS 201, CPSC 265, PSYC 204 as technical electives

With these changes, the credit hours under the Foundational Math and Science section will decrease from 31 to 29 hours, whereby the credit hours under the Technical Electives will increase from 27 to 29 hours. As such, there is a net zero change of overall credit hours.

Justification: The Math department is developing MATH 257 as the eventual replacement for MATH 415, with the same theoretical content, but with an emphasis on using programming to perform matrix operations instead of calculating them on paper. All fields of Electrical and Computer Engineering require linear algebra, and many advanced courses in EE and CE degree programs currently re-teach the same linear algebra concepts. Requiring Math 257 (3 credit hours) instead of the one hour of linear algebra that is part of Math 286 facilitates a higher level of abstraction at the beginning of the semester in a number of higher-level Electrical and Computer Engineering courses.

Removing the requirements for CHEM 102 and 103 in Computer Engineering helps to better harmonize the degree requirements in Computer Engineering and Computer Science. Also this removal helps balance the load between Electrical Engineering and Computer Engineering curricula since Computer Engineering majors were required to take two additional classes (MATH 213/CS 173 and CS 225) in their first two years compared to Electrical Engineering majors under the current curriculum. Interested Computer Engineering majors will still be able to take CHEM 102/103 as technical electives. Further broadening of the ECE technical electives list with the addition of ATMS 201, CPSC 265, PSYC 204 is motivated by providing additional options with potential data science applications for both Computer Engineering and Electrical Engineering majors.

ABET accreditation (https://www.abet.org/accreditation/accreditation-criteria/criteria-for-accrediting-engineering-programs-2019-2020/#GC5) requirement of 30 hours of basic math and sciences will be met by counting one credit hour of the 3 hour discrete math class (MATH 213/CS 173) the Computer Engineering majors are required to take as "basic math".

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Corresponding Degree		
BS Bachelor of Science		
Is this program interdisciplinary?		
No		
Academic Level		
Undergraduate		
Will you admit to the concentration directly?		
No		

Is a concentration required for graduation?

No

CIP Code
140901 - Computer Engineering, General.
Is This a Teacher Certification Program?
No
Will specialized accreditation be sought for this program?
No
Admission Requirements
Is this revision a change to the admission status of the program?
No
Enrollment
Describe how this revision will impact enrollment and degrees awarded.
No impact.
Estimated Annual Number of Degrees Awarded
What is the matriculation term for this program?
Fall
What is the typical time to completion of this program?
4 years
What are the minimum Total Credit Hours required for this program?
128 hours
Delivery Method
Is this program available on campus and online?
No
This program is available:
On Campus

Budget
Are there budgetary implications for this revision? No
Will the program or revision require staffing (faculty, advisors, etc.) beyond what is currently available? No
Resource Implications
Facilities
Will the program require new or additional facilities or significant improvements to already existing facilities? No
Technology
Will the program need additional technology beyond what is currently available for the unit? No
Non-Technical Resources
Will the program require additional supplies, services or equipment (non-technical)? No
Resources
For each of these items, be sure to include in the response if the proposed new program or change will result in replacement of another program(s). If so, which program(s), what is the anticipated impact on faculty, students, and instructional resources? Please attach any letters of support/acknowledgement from faculty, students, and/or other impacted units as appropriate.
Faculty Resources

Please address the impact on faculty resources including any changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc.

Describe how the unit will support student advising, including job placement and/or admission to advanced studies.

No impact

Library	/ Resources

Describe your proposal's impact on the University Library's resources, collections, and services. If necessary please consult with the appropriate disciplinary specialist within the University Library.

No impact

Instructional Resources

Will there be any reduction in other course offerings, programs or concentrations by your department as a result of this new program/proposed change?

No

Does the program include other courses/subjects impacted by the creation/revision of this program?

Yes

Required courses

MATH 285 - Intro Differential Equations

Explain how the inclusion or removal of the courses/subjects listed above impacts the offering departments.

CHEM 102/103 is being removed from the list of required core courses — it will be a Technical Elective after this revision is approved. See attached letter of support from Chemistry.

MATH 257 will be added to the CE program as a required course to be taken after MATH 220. MATH 416 will be an alternative to MATH 257 requirement. Also MATH 286 will be discontinued and replaced by MATH 285. See attached letter of support from Mathematics.

Attach letters of support from other departments.

Computer Engineering, BS Supporting Doc CHEM Support letter.pdf Support letter for ECE revision.pdf Computer Engineering BS Support Doc CPSC LOS.docx Computer Engineering BS Support Doc ATMS Support Letter.pdf Computer Engineering BS Support Doc PSYC LOS.docx

Financial Resources

Will the unit need to seek campus or other external resources?

No

Are you seeking a change in the tuition rate or differential for this program?

Yes

Program Regulation and Assessment

Briefly describe the plan to assess and improve student learning, including the program's learning objectives; when, how, and where these learning objectives will be assessed; what metrics will be used to signify student's achievement of the stated learning objectives; and the process to ensure assessment results are used to improve student learning. (Describe how the program is aligned with or meets licensure, certification, and/or entitlement requirements, if applicable).

CE BS program is ABET Accredited.

The Program Educational Objectives of the CE program presented to ABET is as follows:

The University of Illinois Computer Engineering program will produce graduates having the choice, talents, and knowledge to:

- 1. Pursue a diverse range of careers as engineers, consultants, and entrepreneurs.
- 2. Continue their education in leading graduate programs in engineering and interdisciplinary areas to emerge as researchers, experts, and educators.
- 3. Learn and create new knowledge in ever-changing environments of the 21st century, and communicate their work and ideas to colleagues and the public at large.
- 4. Practice and inspire high ethical and technical standards, and lead their professional disciplines, organizations, and communities globally. All four of these objectives require a student to possess all seven of the skills listed as Student Outcomes of our program (see below). The particular career paths listed in the first two objectives are engineers, consultants, entrepreneurs reachable directly after the B.S. degree as well as researchers, experts, and educators, typically for those graduates who choose to continue their education in some graduate program. Each of these six career choices will critically depend on students acquiring all seven of the particular skills enumerated as Student Outcomes, namely.
- 1. (Principles) an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- 2. (Design) an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- 3. (Communication) an ability to communicate effectively with a range of audiences.
- 4. (Professionalism) an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- 5. (Teamwork) an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- 6. (Analysis) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- 7. (Learning) an ability to acquire and apply new knowledge as needed, using appropriate learning strategies. Student's achievement of these objectives and outcomes are monitored and assessed using using a strategy that depends on Self-Assessment reports written by ECE instructors and course directors as well as student and alumni surveys.

Is the career/profession for graduates of this program regulated by the State of Illinois?

No

Program of Study

"Baccalaureate degree requires at least 120 semester credit hours or 180 quarter credit hours and at least 40 semester credit hours (60 quarter credit hours) in upper division courses" (source: https://www.ibhe.org/assets/files/PrivateAdminRules2017.pdf). For proposals for new bachelor's degrees, if this minimum is not explicitly met by specifically-required 300- and/or 400-level courses, please provide information on how the upper-division hours requirement will be satisfied.

All proposals must attach the new or revised version of the Academic Catalog program of study entry. Contact your college office if you have questions.

Revised programs

Computer Engineering BS Support Doc Side by Side.xlsx

Attach a side-by-side comparison with the existing program AND, if the revision references or adds "chose-from" lists of courses students can select from to fulfill requirements, a listing of these courses, including the course rubric, number, title, and number of credit hours.

Catalog Page Text

Catalog Page Text: Description of program for the catalog page. This is not official content, it is used to help build the catalog pages for the program. Can be edited in the catalog by the college or department.

Computer Engineering at The Grainger College of Engineering focuses on the development of vital computing technologies, ranging from chips to computers to networks to programming tools to key algorithms for building exciting applications. Fundamentally, Computer Engineering addresses the problem of building scalable, trustworthy computing systems, and the faculty's interests span a broad spectrum of issues pertinent to this theme. Computer engineering has taken the lead in revolutionizing many science and engineering disciplines with parallel computing, from chips to clouds to planet-scale critical infrastructures, and has defined new standards of security, privacy, and dependability for systems ranging from small circuits to the electric power grids of many nations. Students need a broad and sound set of mathematical and computing skills, and are well-served by a flexible curriculum that enables them to pursue topics of interest among the many subdisciplines in computing.

The computer engineering core curriculum focuses on fundamental computer engineering knowledge: circuits, systems, electromagnetics, computer systems, electronics for information processing and communication, and computer science. The rich set of ECE elective courses permits students to concentrate in any sub-discipline of computer engineering including: hardware systems; cyberphysical systems; foundations and theory; software and languages; algorithms and mathematical tools; trust, reliability, security; networking, mobile and distributed computing; big data analytics and systems; artificial intelligence, robotics, cybernetics.

Statement for Programs of Study Catalog

Graduation Requirements

Minimum Technical GPA (https://wiki.illinois.edu/wiki/display/ugadvise/Degree+Requirements/#DegreeRequirements-TechnicalGPARequirement):2.0

TGPA is required for ECE courses (except ECE 316). SeeTechnical GPA (https://wiki.illinois.edu/wiki/display/ugadvise/Degree+Requirements/#DegreeRequirements-TechnicalGPARequirement) to clarify requirements.

Minimum Overall GPA:2.0

for this degree are listed below.

Minimum hours required for graduation:128 hours

General education: Students must complete the Campus General Education (https://courses.illinois.edu/gened/DEFAULT/
DEFAULT/)requirements including the campus general education language requirement. Specific Advanced Composition courses required

Orientation and Professional Development

Code	Title	Hours
ENG 100	Engineering Orientation ¹	0
Total Hours		0

Foundational Mathematics and Science

Code	Title	Hours
CHEM 102	General Chemistry I	3
CHEM 103	General Chemistry Lab I	1
MATH 221	Calculus I ²	4
MATH 257	Linear Algebra with Computational Applications (Linear Algebra)	3
or MATH 416	Abstract Linear Algebra	
MATH 231	Calculus II	3
MATH 241	Calculus III	4
MATH 286	Intro to Differential Eq Plus	4
MATH 285	Intro Differential Equations (Linear Algebra)	3
PHYS 211	University Physics: Mechanics	4
PHYS 212	University Physics: Elec & Mag	4
PHYS 213	Univ Physics: Thermal Physics	2

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PHYS 214	Univ Physics: Quantum Physics	2
Total Hours		29
Computer Engineer	ring Technical Core	
Code	Title	Hours
ECE 110	Introduction to Electronics ³	3
ECE 120	Introduction to Computing	4
ECE 210	Analog Signal Processing	4
ECE 220	Computer Systems & Programming	4
CS 173	Discrete Structures ⁴	3
CS 225	Data Structures	4
ECE 313	Probability with Engrg Applic ⁵	3
ECE 374	Introduction to Algorithms & Models of Computation	4
ECE 385	Digital Systems Laboratory	3
ECE 391	Computer Systems Engineering	4
Total Hours	Comparer Systems Engineering	36
Technical Electives		
Code	Title	Hours
	from departmentally approved List of Technical Electives below:	2
AE 202	Aerospace Flight Mechanics	3
AE 302	Aerospace Flight Mechanics II	3
AE 311	Incompressible Flow	3
AE 312	Compressible Flow	3
AE 321	Mechs of Aerospace Structures	3
AE 352	Aerospace Dynamical Systems	3
AE 353	Aerospace Control Systems	3
AE 402	Orbital Mechanics	3 or 4
AE 403	Spacecraft Attitude Control	3 or 4
AE 410	Computational Aerodynamics	3 or 4
AE 412	Viscous Flow & Heat Transfer	4
AE 416	Applied Aerodynamics	3 or 4
AE 419	Aircraft Flight Mechanics	3 or 4
AE 420	Finite Element Analysis	3 or 4
AE 427	Mechanics of Polymers	3
AE 428	Mechanics of Composites	3
AE 433	Aerospace Propulsion	3 or 4
AE 434	Rocket Propulsion	3 or 4
AE 435	Electric Propulsion	3 or 4
AE 451	Aeroelasticity	3 or 4
AE 460	Aerodynamics & Propulsion Lab	2
Agri. Bio Eng. (ABE): all 3 Advising Office.	300 and 400 level courses except 440. Exceptions for seminars and special topics will be reviewed in	
ASTR 210	Introduction to Astrophysics	3
ASTR 310	Computing in Astronomy	3
ASTR 330	Extraterrestrial Life	3
ASTR 350	The Big Bang, Black Holes, and the End of the Universe	3
ASTR 404	Stellar Astrophysics	3
ASTR 405	Planetary Systems	3
ASTR 406	Galaxies and the Universe	
		3
ASTR 414	Astronomical Techniques	
ASTR 450	Astrochemistry	4
ATMS 201	General Physical Meteorology	3

ATMS 301	Atmospheric Thermodynamics	3
ATMS 302	Atmospheric Dynamics I	3
ATMS 303	Synoptic-Dynamic Wea Analysis	4
ATMS 304	Radiative Transfer-Remote Sens	3
ATMS 305	Computing and Data Analysis	3
ATMS 404	Risk Analysis in Earth Science	3 or 4
ATMS 405	Boundary Layer Processes	4
ATMS 406	Tropical Meteorology	4
ATMS 410	Radar Remote Sensing	4
ATMS 411	Satellite Remote Sensing	4
ATMS 420	Atmospheric Chemistry	4
ATMS 421	Earth Systems Modeling	4
ATMS 425	Air Quality Modeling	4
ATMS 447	Climate Change Assessment	3
ATMS 449	Biogeochemical Cycles	4
BIOC 406	Gene Expression & Regulation	3
BIOC 440	Physical Chemistry Principles	4
BIOC 446	Physical Biochemistry	3
BIOC 455	Technqs Biochem & Biotech	4
BIOE 201	Conservation Principles Bioeng	3
BIOE 202	Cell & Tissue Engineering Lab	2
BIOE 302	Modeling Human Physiology	3
BIOE 414	Biomedical Instrumentation	3
BIOE 415	Biomedical Instrumentation Lab	2
BIOE 461	Cellular Biomechanics	4
BIOE 467	Biophotonics	3
BIOE 476	Tissue Engineering	3
BIOE 480	Magnetic Resonance Imaging	3 or 4
Biophysics (BIOP): All 400 level cour	rses except seminars and special topics, which may be reviewed in the Advising Office	
CHBE 221	Principles of CHE	3
CHBE 321	Thermodynamics	4
CHBE 421	Momentum and Heat Transfer	4
CHBE 422	Mass Transfer Operations	4
CHBE 424	Chemical Reaction Engineering	3
CHBE 430	Unit Operations Laboratory	4
CHBE 431	Process Design	4
CHBE 440	Process Control and Dynamics	3
CHBE 451	Transport Phenomena	3
CHBE 452	Chemical Kinetics & Catalysis	3
CHBE 453	Electrochemical Engineering	2 or 3
CHBE 456	Polymer Science & Engineering	3
CHBE 457	Microelectronics Processing	3
CHBE 471	Biochemical Engineering	3 or 4
CHBE 472	Techniques in Biomolecular Eng	3 or 4
CHBE 473	Biomolecular Engineering	3 or 4
CHBE 474	Metabolic Engineering	3 or 4
CHEM 102	General Chemistry I	3
CHEM 103	General Chemistry Lab I	1
CHEM 104	General Chemistry II	3
CHEM 105	General Chemistry Lab II	1
	400 level courses except 397, 497, 499, and seminars and special topics, which may be	'
reviewed in the Advising Office	Too level oodi oos except oo 1, To 1, Too, and seminals and special topics, willon may be	

CEE 310	Transportation Engineering	3
CEE 330	Environmental Engineering	3
CEE 408	Railroad Transportation Engrg	3 or 4
CEE 410	Railway Signaling & Control	3 or 4
CEE 416	Traffic Capacity Analysis	3 or 4
CEE 430	Ecological Quality Engineering	2
CEE 447	Atmospheric Chemistry	4
CEE 491	Decision and Risk Analysis	3 or 4
CPSC 265	Genetic Engineering Lab	3
CS 101	Intro Computing: Engrg & Sci (By Approval)	3
CS 173	Discrete Structures	3
CS 225	Data Structures	4
CS 242	Programming Studio	3
CS 357	Numerical Methods I	3
CS 410	Text Information Systems	3 or 4
CS 411	Database Systems	3 or 4
CS 412	Introduction to Data Mining	3 or 4
CS 413	Intro to Combinatorics	3 or 4
CS 414	Multimedia Systems	3 or 4
CS 418	Interactive Computer Graphics	3 or 4
CS 419	Production Computer Graphics	3 or 4
CS 420	Parallel Progrmg: Sci & Engrg	3 or 4
CS 421	Programming Languages & Compilers	3 or 4
CS 422	Programming Language Design	3 or 4
CS 423	Operating Systems Design	3 or 4
CS 424	Real-Time Systems	3 or 4
CS 425	Distributed Systems	3 or 4
CS 426	Compiler Construction	3 or 4
CS 427	Software Engineering I	3 or 4
CS 428	Software Engineering II	3 or 4
CS 429	Software Engineering II, ACP	3
CS 431	Embedded Systems	3 or 4
CS 433	Computer System Organization	3 or 4
CS 436	Computer Networking Laboratory	3 or 4
CS 438	Communication Networks	3 or 4
CS 439	Wireless Networks	3 or 4
CS 440	Artificial Intelligence	3 or 4
CS 445	Computational Photography	3 or 4
CS 446	Machine Learning	3 or 4
CS 447	Natural Language Processing	3 or 4
CS 450	Numerical Analysis	3 or 4
CS 460	Security Laboratory	3 or 4
CS 461	Computer Security I	4
CS 463	Computer Security II	3 or 4
CS 465	User Interface Design	3 or 4
CS 466	Introduction to Bioinformatics	3 or 4
CS 467	Social Visualization	3 or 4
CS 473	Algorithms	4
CS 475	Formal Models of Computation	3 or 4
CS 476	Program Verification	3 or 4
CS 477	Formal Software Development Methods	3 or 4
CS 481	Advanced Topics in Stochastic Processes & Applications	3 or 4

CS 484	Parallel Programming	3 or 4
CS 398	Special Topics (As approved)	1 to 4
CS 498	Special Topics (As approved)	1 to 4
ECE 297	Individual Study	1
ECE 304	Photonic Devices	3
ECE 307	Techniques for Engrg Decisions	3
ECE 310	Digital Signal Processing	3
ECE 311	Digital Signal Processing Lab	1
ECE 314	Probability in Engineering Lab	1
ECE 329	Fields and Wayes I	3
ECE 330	Power Ckts & Electromechanics	3
ECE 333	Green Electric Energy	3
ECE 340	Semiconductor Electronics	3
ECE 342	Electronic Circuits	3
ECE 343	Electronic Circuits Laboratory	1
ECE 350	Fields and Wayes II	3
ECE 365	Data Science and Engineering	3
ECE 374	Introduction to Algorithms & Models of Computation	4
ECE 380	Biomedical Imaging	3
ECE 391	Computer Systems Engineering	4
ECE 395	Advanced Digital Projects Lab	2 or 3
ECE 396	Honors Project	1 to 4
ECE 397	Individual Study in ECE	0 to 4
ECE 402	Electronic Music Synthesis	3
ECE 403	Audio Engineering	3
ECE 408	Applied Parallel Programming	4
ECE 411	Computer Organization & Design	4
ECE 412	Microcomputer Laboratory	3
ECE 414	Biomedical Instrumentation	3
ECE 415	Biomedical Instrumentation Lab	2
ECE 416	Biosensors	3
ECE 417	Multimedia Signal Processing	4
ECE 418	Image & Video Processing	4
ECE 419	Security Laboratory	3 or 4
ECE 420	Embedded DSP Laboratory	2
ECE 422	Computer Security I	4
ECE 424	Computer Security II	3 or 4
ECE 425	Intro to VLSI System Design	3
ECE 428	Distributed Systems	3 or 4
ECE 431	Electric Machinery	4
ECE 432	Advanced Electric Machinery	3
ECE 435	Computer Networking Laboratory	3 or 4
ECE 437	Sensors and Instrumentation	3
ECE 438	Communication Networks	3 or 4
ECE 439	Wireless Networks	3 or 4
ECE 441	Physcs & Modeling Semicond Dev	3
ECE 443	LEDs and Solar Cells	4
ECE 444	IC Device Theory & Fabrication	4
ECE 445	Senior Design Project Lab	4
ECE 446	Principles of Experimental Research in Electrical Engineering	4
ECE 447	Active Microwave Ckt Design	3
ECE 448	Artificial Intelligence	3 or 4

ECE 451	Adv Microwave Measurements	3
ECE 452	Electromagnetic Fields	3
ECE 453	Wireless Communication Systems	4
ECE 454	Antennas	3
ECE 455	Optical Electronics	3 or 4
ECE 456	Global Nav Satellite Systems	4
ECE 457	Microwave Devices & Circuits	3
ECE 458	Applic of Radio Wave Propag	3
ECE 459	Communications Systems	3
ECE 460	Optical Imaging	4
ECE 461	Digital Communications	3
ECE 462	Logic Synthesis	3
ECE 463	Digital Communications Lab	2
ECE 464	Power Electronics	3
ECE 465	Optical Communications Systems	3
ECE 466	Optical Communications Lab	1
ECE 467	Biophotonics	3
ECE 468	Optical Remote Sensing	3
ECE 469	Power Electronics Laboratory	2
ECE 470	Introduction to Robotics	4
ECE 472	Biomedical Ultrasound Imaging	3
ECE 473	Fund of Engrg Acoustics	3 or 4
ECE 476	Power System Analysis	3 01 4
ECE 478	Formal Software Development Methods	3 or 4
ECE 480	Magnetic Resonance Imaging	3 or 4
ECE 481	Nanotechnology	4
ECE 482	Digital IC Design	3
ECE 483	Analog IC Design	3
ECE 485	MEMS Devices & Systems	3
ECE 486	Control Systems	4
ECE 487	Intro Quantum Electr for EEs	3
ECE 488	Compound Semicond & Devices	3
ECE 489	Robot Dynamics and Control	4
ECE 490	Introduction to Optimization	3 or 4
ECE 491	Numerical Analysis	3 or 4
ECE 492	Parallel Progrmg: Sci & Engrg	3 or 4
ECE 493	Advanced Engineering Math	3 or 4
ECE 495	Photonic Device Laboratory	3
ECE 496	Senior Research Project	2
ECE 499	Senior Thesis	2
ECE 398	Special Topics in ECE (As approved)	0 to 4
ECE 498	Special Topics in ECE (As approved)	0 to 4
ENG 491	Interdisciplinary Design Proj (CubeSat, Solar Decathlon, Formula SAE, Baja SAE or by	1 to 4
LNG 431	approval)	1 10 4
GEOL 107	Physical Geology	4
GEOL 208	History of the Earth System	4
GEOL 333	Earth Materials and the Env	4
GEOL 380	Environmental Geology	4
GEOL 411	Structural Geol and Tectonics	4
GEOL 417	Geol Field Methods, Western US	6
GEOL 432	Mineralogy and Mineral Optics	4
GEOL 436	Petrology and Petrography	4

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GEOL 440	Sedimentology and Stratigraphy	4
GEOL 450	Probing the Earth's Interior	3
GEOL 452	Introduction to Geophysics	4
GEOL 460	Geochemistry	3
IE 310	Deterministic Models in Optimization	3
IE 330	Industrial Quality Control	3
IE 360	Facilities Planning and Design	3
IE 361	Production Planning & Control	3
IE 400	Design & Anlys of Experiments	3 or 4
IE 410	Advanced Topics in Stochastic Processes & Applications	3 or 4
IE 411	Optimization of Large Systems	3 or 4
IE 412	OR Models for Mfg Systems	3 or 4
IE 413	Simulation	3 or 4
IE 420	Financial Engineering	3 or 4
IE 430	Economic Found of Quality Syst	3 or 4
IE 431	Design for Six Sigma	3
IB 150	Organismal & Evolutionary Biol	4
IB 202	Physiology	3 or 4
IB 203	Ecology	4
IB 204	Genetics	3 or 4
IB 302	Evolution	4
IB 302	Evolution	4
IB 335	Plant Systematics	4
IB 348	Fish and Wildlife Ecology	3
IB 368	Vertebrate Natural History	4
IB 401	Introduction to Entomology	3 or 4
IB 405	Evolution of Traits and Genomes	3
IB 420	Plant Physiology	3
IB 421	Photosynthesis	3
IB 426	Env and Evol Physl of Animals	3
IB 427	Insect Physiology	4
IB 431	Behavioral Ecology	3
IB 432	Genes and Behavior	3
IB 440	Plants and Global Change	3
IB 443	Evolutionary Ecology	3
IB 444	Insect Ecology	3 or 4
IB 451	Conservation Biology	4
IB 452	Ecosystem Ecology	3
IB 453	Community Ecology	3
IB 461	Ornithology	4
IB 462	Mammalogy	4
IB 463	Ichthyology	4
IB 464	Herpetology	4
IB 467	Principles of Systematics	4
IB 468	Insect Classification and Evol	4
IB 471	General Mycology	4
IB 472	Plant Molecular Biology	1
IB 473	Plant Genomics	1
IB 481	Vector-borne Diseases	4
IB 482	Insect Pest Management	3
IB 483	Insect Pathology	3
IB 485	Environ Toxicology & Health	3

ID 406	Pacticida Tavicalagy	2 0 4
IB 486 LING 300	Pesticide Toxicology	3 or 4
LING 406	Anat & Physiol Spch Mechanism	4 2 or 4
LING 400 LING 407	Introduction to Computational Linguistics	3 or 4 3 or 4
LING 407	Logic and Linguistic Analysis	
MSE 280	Language and the Brain	3 or 4
	Engineering Materials MSE): All 300 and 400 level courses except 304, 460, 461, and seminars/special topics,	3
which may be reviewed by the Advis		
MATH 213	Basic Discrete Mathematics	3
MATH 347	Fundamental Mathematics	3
MATH 348	Fundamental Mathematics-ACP	4
MATH 357	Numerical Methods I	3
MATH 402	Non Euclidean Geometry	3 or 4
MATH 403	Euclidean Geometry	3 or 4
MATH 412	Graph Theory	3 or 4
MATH 413	Intro to Combinatorics	3 or 4
MATH 414	Mathematical Logic	3 or 4
MATH 415	Applied Linear Algebra	3 or 4
MATH 416	Abstract Linear Algebra	3 or 4
MATH 417	Intro to Abstract Algebra	3 or 4
MATH 418	Intro to Abstract Algebra II	3 or 4
MATH 423	Differential Geometry	3 or 4
MATH 424	Honors Real Analysis	3
MATH 425	Honors Advanced Analysis	3
MATH 427	Honors Abstract Algebra	3
MATH 428	Honors Topics in Mathematics	3
MATH 432	Set Theory and Topology	3 or 4
MATH 442	Intro Partial Diff Equations	3 or 4
MATH 444	Elementary Real Analysis	3 or 4
MATH 446	Applied Complex Variables	3 or 4
MATH 447	Real Variables	3 or 4
MATH 448	Complex Variables	3 or 4
MATH 450	Numerical Analysis	3 or 4
MATH 453	Elementary Theory of Numbers	3 or 4
MATH 473	Algorithms	4
MATH 475	Formal Models of Computation	3 or 4
MATH 481	Vector and Tensor Analysis	3 or 4
MATH 482	Linear Programming	3 or 4
MATH 484	Nonlinear Programming	3 or 4
MATH 487	Advanced Engineering Math	3 or 4
MATH 489	Dynamics & Differential Eqns	3 or 4
MCB 150	Molec & Cellular Basis of Life	4
MCB 250	Molecular Genetics	3
MCB 251	Exp Techniqs in Molecular Biol	2
MCB 252	Cells, Tissues & Development	3
MCB 253	Exp Techniqs in Cellular Biol	2
MCB 300	Microbiology	3
MCB 301	Experimental Microbiology	3
MCB 314	Introduction to Neurobiology	3
MCB 316	Genetics and Disease	4
MCB 354	Biochem & Phys Basis of Life	3
MCB 400	Cancer Cell Biology	3

MCB 401	Cellular Physiology	3
MCB 402	Sys & Integrative Physiology	3
MCB 403	Cell & Membrane Physiology Lab	1 or 2
MCB 404	Sys & Integrative Physiol Lab	1 to 2
MCB 406	Gene Expression & Regulation	3
MCB 408	Immunology	3
MCB 410	Developmental Biology, Stem Cells and Regenerative Medicine	3
MCB 413	Endocrinology	3
MCB 419	Brain, Behavior & Info Process	3
MCB 421	Microbial Genetics	3
MCB 424	Microbial Biochemistry	3
MCB 426	Bacterial Pathogenesis	3
MCB 430	Molecular Microbiology	3
MCB 431	Microbial Physiology	3
MCB 433	Virology & Viral Pathogenesis	3
MCB 435	Evolution of Infectious Disease	
MCB 446	Physical Biochemistry	3
MCB 480	Eukaryotic Cell Signaling	
ME 200	•	3
	Thermodynamics	3
ME 310	Fundamentals of Fluid Dynamics	4
ME 320	Heat Transfer	4
ME 330	Engineering Materials	4
ME 340	Dynamics of Mechanical Systems	3.5
ME 370	Mechanical Design I	3
ME 371	Mechanical Design II	3
ME 400	Energy Conversion Systems	3 or 4
ME 401	Refrigeration and Cryogenics	3 or 4
ME 402	Design of Thermal Systems	3 or 4
ME 403	Internal Combustion Engines	3 or 4
ME 404	Intermediate Thermodynamics	4
ME 410	Intermediate Gas Dynamics	3 or 4
ME 411	Viscous Flow & Heat Transfer	4
ME 412	Numerical Thermo-Fluid Mechs	2 to 4
ME 420	Intermediate Heat Transfer	4
ME 430	Failure of Engrg Materials	3 or 4
ME 431	Mechanical Component Failure	3 or 4
ME 440	Kinem & Dynamics of Mech Syst	3 or 4
ME 445	Introduction to Robotics	4
ME 450	Modeling Materials Processing	3
ME 451	Computer-Aided Mfg Systems	3 or 4
ME 452	Num Control of Mfg Processes	3 or 4
ME 460	Industrial Control Systems	4
ME 461	Computer Cntrl of Mech Systems	3 or 4
ME 471	Finite Element Analysis	3 or 4
ME 472	Introduction to Tribology	3 or 4
ME 485	MEMS Devices & Systems	3
ME 487	MEMS-NEMS Theory & Fabrication	4
MUS 407	Elect Music Techniques I	3
MUS 409	Elec Music Techniques II	2
NEUR 453	Cog Neuroscience of Vision	3 or 4
NPRE 201	Energy Systems	2 or 3
NPRE 247	Modeling Nuclear Energy System	3

NPRE 402	Nuclear Power Engineering	3 or 4
NPRE 412	Nuclear Power Econ & Fuel Mgmt	3 or 4
NPRE 421	Plasma and Fusion Science	3
NPRE 423	Plasma Laboratory	2
NPRE 429	Plasma Engineering	3
NPRE 431	Materials in Nuclear Engrg	3
NPRE 432	Nuclear Engrg Materials Lab	2
NPRE 435	Radiological Imaging	3
NPRE 441	Radiation Protection	4
NPRE 442	Radioactive Waste Management	3
NPRE 444	Nuclear Analytical Methods Lab	2 or 3
NPRE 446	Radiation Interact w/Matter I	3
NPRE 447	Radiation Interact w/Matter II	3
NPRE 448	Nuclear Syst Engrg & Design	4
NPRE 451	NPRE Laboratory	3
NPRE 455	Neutron Diffusion & Transport	4
NPRE 457	Safety Anlys Nucl Reactor Syst	3 or 4
NPRE 458	Design in NPRE	4
NPRE 470	Fuel Cells & Hydrogen Sources	3
NPRE 475	Wind Power Systems	3 or 4
PHYS 225	Relativity & Math Applications	2
PHYS 325	Classical Mechanics I	3
PHYS 326	Classical Mechanics II	3
PHYS 401	Classical Physics Lab	3
PHYS 402	Light	3 or 4
PHYS 403	Modern Experimental Physics	4 or 5
PHYS 406	Acoustical Physics of Music	4
PHYS 419	Space, Time, and Matter-ACP	3 or 4
PHYS 420	Space, Time, and Matter	2
PHYS 427	Thermal & Statistical Physics	4
PHYS 460	Condensed Matter Physics	4
PHYS 466	Atomic Scale Simulations	3 or 4
PHYS 470	Subatomic Physics	4
PHYS 485	Atomic Phys & Quantum Theory	3
PHYS 486	Quantum Physics I	4
PHYS 487	Quantum Physics II	4
PSYC 204	Intro to Brain and Cognition	3
SHS 200	General Phonetics	3
SHS 240	Intro Sound & Hearing Science	3
SHS 300	Anat & Physiol Spch Mechanism	4
SHS 301	General Speech Science	4
SHS 320	Development of Spoken Language	3
SHS 450	Intro Audiol & Hear Disorders	4
		4
SHS 470	Neural Bases Spoh Lang Methodo of Applied Statistics	3 or 4
STAT 420	Methods of Applied Statistics	
STAT 424	Analysis of Variance	3 or 4
STAT 428	Statistical Computing	3 or 4
STAT 429	Time Series Analysis	3 or 4
STAT 440	Statistical Data Management	3 or 4
SE 411	Reliability Engineering	3 or 4
SE 420	Digital Control Systems	4
SE 423	Mechatronics	3

SE 424	State Space Design for Control	3
TAM 211	Statics	3
TAM 212	Introductory Dynamics	3
TAM 251	Introductory Solid Mechanics	3
TAM 324	Behavior of Materials	4
TAM 335	Introductory Fluid Mechanics	4
TAM 412	Intermediate Dynamics	4
TAM 435	Intermediate Fluid Mechanics	4
TAM 445	Continuum Mechanics	4
TAM 451	Intermediate Solid Mechanics	4
One course from depart	tmentally approved list of EE Foundations Courses	
ECE 310	Digital Signal Processing	3
ECE 330	Power Ckts & Electromechanics	3
ECE 329	Fields and Waves I	3
ECE 340	Semiconductor Electronics	3
ECE 461	Digital Communications	3
ECE 486	Control Systems	4
Three courses from dep	partmentally approved list of Advanced Computing Electives below:	
CS 357	Numerical Methods I	3
CS 411	Database Systems	3 or 4
CS 412	Introduction to Data Mining	3 or 4
CS 414	Multimedia Systems	3 or 4
CS 418	Interactive Computer Graphics	3 or 4
CS 419	Production Computer Graphics	3 or 4
CS 420	Parallel Progrmg: Sci & Engrg	3 or 4
CS 421	Programming Languages & Compilers	3 or 4
CS 423	Operating Systems Design	3 or 4
CS 424	Real-Time Systems	3 or 4
CS 425	Distributed Systems	3 or 4
CS 426	Compiler Construction	3 or 4
CS 431	Embedded Systems	3 or 4
CS 436	Computer Networking Laboratory	3 or 4
CS 438	Communication Networks	3 or 4
CS 440	Artificial Intelligence	3 or 4
CS 446	Machine Learning	3 or 4
CS 450	Numerical Analysis	3 or 4
CS 461	Computer Security I	4
CS 475	Formal Models of Computation	3 or 4
CS 476	Program Verification	3 or 4
CS 477	Formal Software Development Methods	3 or 4
CS 483	Applied Parallel Programming	4
CS 498	Special Topics (MP. Logic for Computer Science)	1 to 4
CS 498	Special Topics (VR: Virtual Reality)	1 to 4
CS 498	Special Topics (AML: Applied Machine Learning)	1 to 4
ECE 408	Applied Parallel Programming	4
ECE 411	Computer Organization & Design	4
ECE 412	Microcomputer Laboratory	3
ECE 419	Security Laboratory	3 or 4
ECE 422	Computer Security I	4
ECE 424	Computer Security II	3 or 4
ECE 425	Intro to VLSI System Design	3
ECE 428	Distributed Systems	3 or 4

ECE 435	Computer Networking Laboratory	3 or 4
ECE 438	Communication Networks	3 or 4
ECE 439	Wireless Networks	3 or 4
ECE 448	Artificial Intelligence	3 or 4
ECE 462	Logic Synthesis	3
ECE 470	Introduction to Robotics	4
ECE 478	Formal Software Development Methods	3 or 4
ECE 491	Numerical Analysis	3 or 4
ECE 492	Parallel Progrmg: Sci & Engrg	3 or 4
ECE 498	Special Topics in ECE (RC: Smart Phone Computing and Applications)	0 to 4
One course from departr	mentally approved list below:	
ECE 411	Computer Organization & Design	4
ECE 445	Senior Design Project Lab ⁶	4
ECE 496	Senior Research Project (and ECE 499- Senior Thesis) ⁶	4

Electives

Code	Title		Hours
-	lege of Engineering Liberal Education course list nd Behavioral Sciences or Humanities and the A	t, or additional courses from the campus General Education rts ⁷	6
	dditional unrestricted course work, subject to ce ours earned toward the degree. ⁸	rtain exceptions as noted by the College, so that there are at	12
Total Hours of Cu	ırriculum to Graduate		128

- External transfer students takeENG 300 instead.
- MATH 220may be substituted, with four of the five credit hours applying toward the degree.MATH 220is appropriate for students with no background in calculus
- Freshmen takeECE 110for 3 credit hours. Lab-only version taken by transfer students (with special permission) is 1 credit hour.
- MATH 213may be substituted.
- 5 STAT 410may be substituted.
- Advanced Composition may be satisfied by completingECE 445orECE 496andECE 499or a course within either the general education or free elective categories which has the Advanced Composition designation.
- The Grainger College of Engineering approved liberal education course list can be foundhere (https://wiki.illinois.edu/wiki/display/ugadvise/Degree +Requirements/#DegreeRequirements-GeneralEducation). Note that these credit hours could carry the required cultural studies designation required for campus general education requirements.
- The Grainger College of Engineering restrictions to free electives can be foundhere (https://wiki.illinois.edu/wiki/display/ugadvise/Degree +Requirements/#DegreeRequirements-FreeElectives).

EP Documentation

DMI Documentation

Attach Final Approval Notices

ClassSenMinUIUC022020.pdf

Banner/Codebook Name

BS:Computer Engineering -UIUC

Program Code:
10KP0109BS
Degree Code
BS
Major Code
0109

Program Reviewer Comments

Deb Forgacs (dforgacs) (Wed, 07 Oct 2020 17:05:13 GMT):Rollback: requested.

Brooke Newell (bsnewell) (Tue, 13 Oct 2020 17:02:20 GMT):Added CHEM Letter of Support

Brooke Newell (bsnewell) (Thu, 29 Oct 2020 16:37:29 GMT):Rollback: Rolling back proposal per request

Kathy Martensen (kmartens) (Wed, 10 Mar 2021 21:27:41 GMT): Administrative approval: No change to total hours required/restriction of options. Kathy Martensen (kmartens) (Wed, 10 Mar 2021 21:48:10 GMT): Rollback: Please add letters of support from the departments of ATMS, CPSC, and PSYC for adding their courses as choose-froms in the Tech Electives list. Thanks!

Candy Deaville (candyd) (Wed, 10 Mar 2021 21:52:32 GMT):Rollback: Please add letters of support from the departments of ATMS, CPSC, and PSYC for adding their courses as choose-froms in the Tech Electives list

Kathy Martensen (kmartens) (Mon, 22 Mar 2021 18:54:28 GMT): Administrative approval: No change to total hours required, doesn't restrict students' options.

Key: 248



COLLEGE OF LIBERAL ARTS & SCIENCES

Department of Chemistry 1026 Chemistry Annex, MC-712 601 S. Mathews Ave. Urbana, IL 61801-3602

October 12, 2020

Dear Prof. Hasegawa-Johnson,

The Department of Chemistry thanks you for your note, and for bringing your proposed curriculum changes to our attention. We are now aware that you intend to change your undergraduate Computer Engineering major requirements to eliminate Chem 102 (although students could still take it as an elective). We have no major objections to this proposal and wish you the best as you work toward your curriculum change.

Please let me know if there are any other questions or concerns I can help address.

Sincerely,

Ćhristian R. Ray, PhD

Director of General Chemistry Assistant Teaching Professor

University of Illinois at Urbana-Champaign

2025 Chemistry Annex

217-244-0297

crray@illinois.edu



MATHEMATICS

College of Liberal Arts & Sciences 273 Altgeld Hall, MC-382 1409 W. Green Street Urbana, IL 61801 USA

February 22, 2021

Erhan Kudeki
Professor and Associate Head for Undergraduate Affairs
Department of Electrical and Computer Engineering
University of Illinois at Urbana-Champaign

Dear Professor Kudeki,

Our department acknowledges and supports the proposed revision of the Electrical Engineering (EE) and Computer Engineering (CE) BS programs, to adopt MATH 257 as a required course for EE and CE majors to be taken after MATH 220/221 and before MATH 285, and to replace MATH 286 with MATH 285. The Department of Mathematics is prepared to accommodate the enrollment shifts among courses which will result from these changes.

In the event that this curricular revision is approved, the Mathematics Department will remove the phrase "Computer Engineering or Electrical Engineering" from the following statement in Course Explorer regarding MATH 285 (which can be found at https://courses.illinois.edu/schedule/2021/spring/MATH/285):

"not intended for Computer Engineering or Electrical Engineering or Math & CS major(s)."

Sincerely,

Jeremy Tyson

Professor and Chair

Department of Mathematics

University of Illinois at Urbana-Champaign



COLLEGE OF LIBERAL ARTS & SCIENCES

Department of Atmospheric Sciences 3070 Natural History Building, MC-104 1301 W. Green St. Urbana, IL 61801-3070

March 15, 2021

Dear Professor Kudeki,

The Department of Atmospheric Sciences approves listing the class ATMS 201 (General Physical Meteorology) as Technical Elective for Electrical Engineering and Computer Engineering majors.

Sincerely,

Nicole Riemer

Professor and Associate Head

Department of Atmospheric Sciences

Vicole Riemer

On Mar 18, 2021, at 11:14 AM, Aber, Mark S <maber@illinois.edu> wrote:

Dear Erhan,

We are happy to support ECE by welcoming your students into PSYC 204. Best of luck with your curriculum revision.

best, Mark

From: Kudeki, Erhan < erhan@illinois.edu > Sent: Thursday, March 11, 2021 4:45 PM
To: Aber, Mark S < maber@illinois.edu >

Cc: Kudeki, Erhan < erhan@illinois.edu">edu>; Newell, Brooke < bsnewell@illinois.edu>

Subject: Support letter request

Dear Mark.

I am writing to let you know that ECE has decided to add PSYC 204, Intro to Brain and Cognition, to its list of Technical Electives applicable to Electrical Engineering and Computer Engineering majors in our undergraduate program.

We have been asked by the College of Engineering to seek a letter of support from Psychology for this change as our curriculum revision proposal, approved by the College Executive Committee, goes up to the University Senate. Please provide us with such a letter of support. I'll be happy to answer any questions you may have about our request.

Thanks and best regards,

Erhan

Erhan Kudeki 2172650128 | erhan@illinois.edu Professor and Associate Head for Undergraduate Affairs Electrical and Computer Engineering, The Grainger College of Engineering 2080 ECE Building, 306 North Wright Street, Urbana, IL 61801

On Mar 18, 2021, at 2:52 PM, Rayburn, A Lane arayburn@illinois.edu wrote:

Hi Erhan

Crop Sciences supports adding CPSC 265 to the list of technical electives in ECE.

Just let me know if you need anything else.

Sincerely,

Lane

Dr. A. Lane Rayburn
Professor of Cytogenetics
Director of Undergraduate Studies
Department of Crop Sciences
University of Illinois
AE-120 Turner Hall
1102 S. Goodwin Ave
Urbana, IL 61801
Telephone - 217 333-4374.
http:// https://cropsciences.illinois.edu/people/profile/arayburn

From: Kudeki, Erhan < erhan@illinois.edu Sent: Thursday, March 18, 2021 10:47 AM

To: Tranel, Patrick J tranel@illinois.edu; Rayburn, A Lane arayburn@illinois.edu>

Cc: Kudeki, Erhan < <u>erhan@illinois.edu</u>> **Subject:** Re: Support letter request

Thanks Pat, I'm ashamed of my cut and paste error :-)

Lane, we will be needing the crop sciences support letter. We will be adding CPSC 265 to our very broad list of Technical Electives in ECE. Let me know if you have any questions.

Regards,

Erhan

Erhan Kudeki 2172650128 | erhan@illinois.edu Professor and Associate Head for Undergraduate Affairs Electrical and Computer Engineering, The Grainger College of Engineering 2080 ECE Building, 306 North Wright Street, Urbana, IL 61801

<image001.png>

On Mar 18, 2021, at 9:23 AM, Tranel, Patrick J < tranel@illinois.edu > wrote:

Erhan,

Sorry. I scanned your email before and deleted it because this is out of my jurisdiction, and because your email stated you needed a letter from atmospheric sciences, not crop sciences. After a closer read, I've passed your email on to our teaching coordinator, Lane Rayburn, who handles these.

Pat

PATRICK J TRANEL

Ainsworth Professor and Associate Head

University of Illinois at Urbana-Champaign College of Agricultural, Consumer and Environmental Sciences **Department of Crop Sciences 320 ERML** 1201 W Gregory Dr | M/C 051 Urbana, IL 61801 217.333.1531 | tranel@illinois.edu cropsciences.illinois.edu

<image001.png>

Under the Illinois Freedom of Information Act any written communication to or from university employees regarding university business is a public record and may be subject to public disclosure.

From: "Kudeki, Erhan" < erhan@illinois.edu> Date: Thursday, March 18, 2021 at 9:03 AM

To: Patrick Tranel < <u>tranel@illinois.edu</u>>

Cc: "Kudeki, Erhan" < erhan@illinois.edu>, "Newell, Brooke" < bsnewell@illinois.edu>

Subject: Re: Support letter request

Hi Patrick, a gentle reminder, thx,

Erhan

Erhan Kudeki 2172650128 | erhan@illinois.edu Professor and Associate Head for Undergraduate Affairs Electrical and Computer Engineering, The Grainger College of Engineering 2080 ECE Building, 306 North Wright Street, Urbana, IL 61801

On Mar 11, 2021, at 4:45 PM, Kudeki, Erhan < erhan@illinois.edu > wrote:

Dear Patrick,

I am writing to let you know that ECE has decided to add CPSC 265, Genetic Engineering Lab, to its list of Technical Electives applicable to Electrical Engineering and Computer Engineering majors in our undergraduate program.

We have been asked by the College of Engineering to seek a letter of support from Atmospheric Sciences for this change as our curriculum revision proposal, approved by the College Executive Committee, goes up to the University Senate. Please provide us with such a letter of support. I'll be happy to answer any questions you may have about our request.

Thanks and best regards,

Erhan

Erhan Kudeki

2172650128 | erhan@illinois.edu

Professor and Associate Head for Undergraduate Affairs

Electrical and Computer Engineering, The Grainger College of Engineering
2080 ECE Building, 306 North Wright Street, Urbana, IL 61801

Addition					
Revision CURRENT PR	POGRAM		REVISED PR	OCERAM	
	n and Professional Development			n and Professional Development	
Code	Title Engineering Orientation ¹	Hours	Code	Title Engineering Orientation ¹	Hours
Total Hours	Engineering Orientation		0 Total Hours	Engineering Orientation	
Foundation Course List	nal Mathematics and Science		Foundation Course List	onal Mathematics and Science	
Code	Title General Chemistry I	Hours		Title	Hours
	General Chemistry Lab I		1 4 MATH 221	Calculus L ²	
MATH 231 MATH 241	Calculus II		3 MATH 231	Calculus II Calculus III	
WATI1241	Calculus III		MATH 257	Linear Algebra with Computational Applications	
MATH 286 PHYS 211	Intro to Differential Eq Plus University Physics: Mechanics		4 4 PHYS 211	University Physics: Mechanics	
PHYS 212	University Physics: Elec & Mag Univ Physics: Thermal Physics		4 PHYS 212	University Physics: Elec & Mag Univ Physics: Thermal Physics	
	Univ Physics: Quantum Physics			Univ Physics: Quantum Physics	
	Engineering Technical Core			Engineering Technical Core	
Course List Code	Title	Hours	Course List Code	Title	Hours
ECE 110	Introduction to Electronics ³ Introduction to Computing		3 ECE 110	Introduction to Electronics ³ Introduction to Computing	
ECE 210 ECE 220	Analog Signal Processing Computer Systems & Programming		4 ECE 210 4 ECE 220	Analog Signal Processing Computer Systems & Programming	
CS 173	Discrete Structures ⁴ Data Structures		3 CS 173	Discrete Structures ⁴	
ECE 313 ECE 374	Probability with Engrg Applic ⁵ Introduction to Algorithms & Models of Computa	6	3 ECE 313 4 ECE 374	Probability with Engrg Applic ⁵ Introduction to Algorithms & Models of Computa	at.
ECE 385	Digital Systems Laboratory Computer Systems Engineering		3 ECE 385	Digital Systems Laboratory Computer Systems Engineering	
Total Hours			36 Total Hours		
Technical I	Electives		Technical Course List		
			Code	Title be selected from departmentally approved List of	Hours
AE 202 AE 302	Aerospace Flight Mechanics Aerospace Flight Mechanics II		3 AE 202 3 AE 302	Aerospace Flight Mechanics Aerospace Flight Mechanics II	
AE 311 AE 312	Incompressible Flow Compressible Flow		3 AE 311 3 AE 312	Incompressible Flow Compressible Flow	
AE 352	Mechs of Aerospace Structures Aerospace Dynamical Systems		3 AE 321 3 AE 352	Mechs of Aerospace Structures Aerospace Dynamical Systems	
	Aerospace Control Systems Orbital Mechanics	3 or 4			3 or 4
AE 410	Spacecraft Attitude Control Computational Aerodynamics	3 or 4 3 or 4	AE 403 AE 410	Computational Aerodynamics	3 or 4 3 or 4
AE 412 AE 416	Viscous Flow & Heat Transfer Applied Aerodynamics	3 or 4	4 AE 412 AE 416	Viscous Flow & Heat Transfer Applied Aerodynamics	3 or 4
AE 420	Aircraft Flight Mechanics Finite Element Analysis	3 or 4 3 or 4	AE 420	Finite Element Analysis	3 or 4 3 or 4
AE 428	Mechanics of Polymers Mechanics of Composites		3 AE 427 3 AE 428	Mechanics of Polymers Mechanics of Composites	
AE 433 AE 434	Aerospace Propulsion Rocket Propulsion	3 or 4 3 or 4	AE 433 AE 434	Aerospace Propulsion Rocket Propulsion	3 or 4 3 or 4
AE 451	Electric Propulsion Aeroelasticity	3 or 4 3 or 4	AE 451	Electric Propulsion Aeroelasticity	3 or 4 3 or 4
	Aerodynamics & Propulsion Lab (ABE): all 300 and 400 level courses except 440.	Exceptions fo		Aerodynamics & Propulsion Lab p. (ABE): all 300 and 400 level courses except 440.	
	Introduction to Astrophysics Computing in Astronomy			Introduction to Astrophysics Computing in Astronomy	
	Extraterrestrial Life The Big Bang, Black Holes, and the End of the I			Extraterrestrial Life The Big Bang, Black Holes, and the End of the L	U
ASTR 404	Stellar Astrophysics Planetary Systems		3 ASTR 404	Stellar Astrophysics Planetary Systems	
	Galaxies and the Universe Astronomical Techniques			Galaxies and the Universe Astronomical Techniques	
ASTR 450	Astrochemistry		4 ASTR 450 ATMS 201	Astrochemistry General Physical Meteorology	
	Atmospheric Thermodynamics Atmospheric Dynamics I			Atmospheric Thermodynamics Atmospheric Dynamics I	
	Synoptic-Dynamic Wea Analysis Radiative Transfer-Remote Sens			Synoptic-Dynamic Wea Analysis Radiative Transfer-Remote Sens	
ATMS 305	Computing and Data Analysis Risk Analysis in Earth Science		3 ATMS 305	Computing and Data Analysis	3 or 4
ATMS 405 ATMS 406	Boundary Layer Processes Tropical Meteorology		4 ATMS 405 4 ATMS 406	Boundary Layer Processes Tropical Meteorology	
ATMS 410 ATMS 411	Radar Remote Sensing Satellite Remote Sensing		4 ATMS 410	Radar Remote Sensing Satellite Remote Sensing	
ATMS 420	Atmospheric Chemistry Earth Systems Modeling		4 ATMS 420	Atmospheric Chemistry Earth Systems Modeling	
ATMS 425	Air Quality Modeling Climate Change Assessment		4 ATMS 425	Air Quality Modeling Climate Change Assessment	
ATMS 449	Biogeochemical Cycles Gene Expression & Regulation		4 ATMS 449	Biogeochemical Cycles Gene Expression & Regulation	
	Physical Chemistry Principles Physical Biochemistry			Physical Chemistry Principles Physical Biochemistry	
BIOC 455	Technqs Biochem & Biotech Conservation Principles Bioeng		4 BIOC 455	Technqs Biochem & Biotech Conservation Principles Bioeng	
BIOE 202	Cell & Tissue Engineering Lab Modeling Human Physiology		2 BIOE 202	Cell & Tissue Engineering Lab Modeling Human Physiology	
BIOE 414 BIOE 415	Biomedical Instrumentation Biomedical Instrumentation Lab		3 BIOE 414 2 BIOE 415	Biomedical Instrumentation Biomedical Instrumentation Lab	
BIOE 461	Cellular Biomechanics Biophotonics		4 BIOE 461	Cellular Biomechanics Biophotonics	
BIOE 476	Tissue Engineering			Tissue Engineering	3 or 4
Biophysics (B		pecial topics,	wt Biophysics (B	Magnetic Resonance Imaging BIOP): All 400 level courses except seminars and s Principles of CHE	
CHBE 321	Thermodynamics		4 CHBE 321	Thermodynamics	
CHBE 422	Momentum and Heat Transfer Mass Transfer Operations		4 CHBE 422	Momentum and Heat Transfer Mass Transfer Operations Chemical Reaction Engineering	
CHBE 430	Chemical Reaction Engineering Unit Operations Laboratory		4 CHBE 430	Unit Operations Laboratory	
CHBE 440	Process Design Process Control and Dynamics		3 CHBE 440	Process Design Process Control and Dynamics	
CHBE 452	Transport Phenomena Chemical Kinetics & Catalysis		3 CHBE 452	Transport Phenomena Chemical Kinetics & Catalysis	
CHBE 456	Electrochemical Engineering Polymer Science & Engineering	2 or 3	3 CHBE 456	Polymer Science & Engineering	2 or 3
CHBE 471	Microelectronics Processing Biochemical Engineering	3 or 4	CHBE 471	Microelectronics Processing Biochemical Engineering	3 or 4
CHBE 472 CHBE 473	Techniques in Biomolecular Eng Biomolecular Engineering	3 or 4 3 or 4	CHBE 473	Techniques in Biomolecular Eng Biomolecular Engineering	3 or 4 3 or 4
CHBE 474	Metabolic Engineering	3 or 4	CHBE 474	Metabolic Engineering General Chemistry I	3 or 4
	General Chemistry II		3 CHEM 104	General Chemistry Lab I General Chemistry II	
CHEM 104			1 CHEM 105	General Chemistry Lab II	397, 497, 499, and
CHEM 105 Chemistry (Ch	General Chemistry Lab II HEM): All 200, 300 and 400 level courses except :				
CHEM 105 Chemistry (CH CEE 310 CEE 330	General Chemistry Lab II HEM): All 200, 300 and 400 level courses except: Transportation Engineering Environmental Engineering		3 CEE 310 3 CEE 330	Transportation Engineering Environmental Engineering	
CHEM 105 Chemistry (CH CEE 310 CEE 330 CEE 408	General Chemistry Lab II HEM): All 200, 300 and 400 level courses except : Transportation Engineering		3 CEE 310 3 CEE 330 CEE 408		3 or 4 3 or 4
CHEM 105 Chemistry (CHE 310 CEE 330 CEE 408 CEE 410 CEE 416 CEE 430	General Chemistry Lab II HIEM): All 200, 300 and 400 level courses except : Transportation Engineering Environmental Engineering Railroad Transportation Engrg	3 or 4 3 or 4 3 or 4	3 CEE 310 3 CEE 330 CEE 408	Environmental Engineering Railroad Transportation Engrg Railway Signaling & Control	
CHEM 105 Chemistry (CHE 310 CEE 330 CEE 408 CEE 410 CEE 416 CEE 430 CEE 447	General Chemistry Lab II HEM]: All 200, 300 and 400 level courses except : Transportation Engineering Environmental Engineering Railroad Transportation Engrg Railway Signaling & Control Traffic Capacity Analysis	3 or 4 3 or 4 3 or 4	3 CEE 310 3 CEE 330 CEE 408 CEE 410 CEE 416	Environmental Engineering Railroad Transportation Engrg Railway Signaling & Control Traffic Capacity Analysis	3 or 4
CHEM 105 Chemistry (CF 310 CEE 310 CEE 330 CEE 408 CEE 410 CEE 416 CEE 430 CEE 447 CEE 491	General Chemistry Lab II EHBIM, 21(20, 30 and 400 level courses except : Transportation Engineering Railway Signaling & Control Traffic Capacity Analysis Ecological Quality Engineering Ammospheric Chemistry Ammospheric Chemistry	3 or 4 3 or 4 3 or 4	3 CEE 310 3 CEE 330 CEE 408 CEE 410 CEE 416 2 CEE 430 4 CEE 447	Emironmental Engineering Railroad Transportation Engrg Railway Signaling & Control Traffic Capacity Analysis Ecological Quality Engineering Atmospheric Chemistry	3 or 4 3 or 4
CHEM 105 Chemistry (CF CEE 310 CEE 330 CEE 408 CEE 410 CEE 416 CEE 430 CEE 447 CEE 491	General Chemistry Lab II BEBLIN, JA 200, 300 and 400 level courses except: Transportation Engineering Raincast Transportation Engineering Raincast Transportation Engine Raincast Transportation Engine Raincast Capacity Analysis Ecological Quality Engineering Atmospheric Chemistry Decision and Risk Analysis	3 or 4 3 or 4 3 or 4	3 CEE 310 3 CEE 330 CEE 408 CEE 410 CEE 416 2 CEE 430 4 CEE 447 CEE 491	Environmental Engineerina Railroad Transportation Engra Railway Signaling & Control Traffic Capacity Analysis Ecological Quality Franteerina Atmospheric Chemistry Decision and Risk Analysis	3 or 4 3 or 4

CS 242	Programming Studio		3 CS 242	Programming Studio		3
CS 357 CS 410	Numerical Methods I Text Information Systems		3 CS 357 CS 410	Numerical Methods I Text Information Systems	3 or 4	3
CS 411	Database Systems	3 or 4	CS 411	Database Systems	3 or 4	
CS 412 CS 413		3 or 4 3 or 4	CS 412 CS 413	Introduction to Data Mining Intro to Combinatorics	3 or 4 3 or 4	
CS 414	Multimedia Systems	3 or 4	CS 414	Multimedia Systems	3 or 4	
CS 418 CS 419		3 or 4 3 or 4	CS 418 CS 419	Interactive Computer Graphics Production Computer Graphics	3 or 4 3 or 4	
CS 420 CS 421		3 or 4 3 or 4	CS 420 CS 421	Parallel Progrmg: Sci & Engrg Programming Languages & Compilers	3 or 4 3 or 4	
CS 421 CS 422	Programming Language Design	3 or 4	CS 422	Programming Language Design	3 or 4 3 or 4	
CS 423 CS 424		3 or 4 3 or 4	CS 423 CS 424	Operating Systems Design Real-Time Systems	3 or 4 3 or 4	
CS 425	Distributed Systems	3 or 4	CS 425	Distributed Systems	3 or 4	
CS 426 CS 427		3 or 4 3 or 4	CS 426 CS 427	Compiler Construction Software Engineering I	3 or 4 3 or 4	
CS 428	Software Engineering II	3 or 4	CS 428	Software Engineering II	3 or 4	
CS 429 CS 431	Software Engineering II, ACP Embedded Systems	3 or 4	3 <u>CS 429</u> CS 431	Software Engineering II, ACP Embedded Systems	3 or 4	3
CS 433	Computer System Organization	3 or 4	CS 433	Computer System Organization	3 or 4	
CS 436 CS 438		3 or 4 3 or 4	CS 436 CS 438	Computer Networking Laboratory Communication Networks	3 or 4 3 or 4	
CS 439 CS 440		3 or 4 3 or 4	CS 439 CS 440	Wireless Networks Artificial Intelligence	3 or 4 3 or 4	
CS 445		3 or 4	CS 445	Computational Photography	3 or 4	
CS 446 CS 447		3 or 4 3 or 4	CS 446 CS 447	Machine Learning Natural Language Processing	3 or 4 3 or 4	
CS 450	Numerical Analysis	3 or 4	CS 450	Numerical Analysis	3 or 4	
CS 460 CS 461	Security Laboratory Computer Security I	3 or 4	CS 460 4 CS 461	Security Laboratory Computer Security I	3 or 4	4
CS 463	Computer Security II	3 or 4	CS 463	Computer Security II	3 or 4	
CS 465 CS 466		3 or 4 3 or 4	CS 465 CS 466	User Interface Design Introduction to Bioinformatics	3 or 4 3 or 4	
CS 467 CS 473	Social Visualization Algorithms	3 or 4	CS 467 4 CS 473	Social Visualization Algorithms	3 or 4	4
CS 475	Formal Models of Computation	3 or 4	CS 475		3 or 4	4
CS 476 CS 477		3 or 4 3 or 4	CS 476 CS 477	Program Verification Formal Software Development Methods	3 or 4 3 or 4	
CS 481	Advanced Topics in Stochastic Processes & App	3 or 4	CS 481	Advanced Topics in Stochastic Processes & App	3 or 4	
CS 484 CS 398		3 or 4 1 to 4	CS 484 CS 398	Parallel Programming Special Topics (As approved)	3 or 4 1 to 4	
CS 498	Special Topics (As approved)	1 to 4	CS 498	Special Topics (As approved)	1 to 4	
ECE 297 ECE 304	Individual Study Photonic Devices		1 ECE 297 3 ECE 304	Individual Study Photonic Devices		3
ECE 307 ECE 310	Techniques for Engrg Decisions		3 ECE 307 3 ECE 310	Techniques for Engrg Decisions		3
ECE 311	Digital Signal Processing Digital Signal Processing Lab		1 ECE 311	Digital Signal Processing Digital Signal Processing Lab		3 1
ECE 314 ECE 329	Probability in Engineering Lab Fields and Waves I		1 ECE 314 3 ECE 329	Probability in Engineering Lab Fields and Waves I		1 3
ECE 330	Power Ckts & Electromechanics		3 ECE 330	Power Ckts & Electromechanics		3
ECE 333 ECE 340	Green Electric Energy Semiconductor Electronics		3 ECE 333 3 ECE 340	Green Electric Energy Semiconductor Electronics		3 3
ECE 342	Electronic Circuits		3 ECE 342	Electronic Circuits		3
ECE 343 ECE 350	Electronic Circuits Laboratory Fields and Waves II		1 ECE 343 3 ECE 350	Electronic Circuits Laboratory Fields and Waves II		1 3
ECE 365	Data Science and Engineering		3 ECE 365	Data Science and Engineering		3
ECE 374 ECE 380	Introduction to Algorithms & Models of Computati Biomedical Imaging		4 ECE 374 3 ECE 380	Introduction to Algorithms & Models of Computat Biomedical Imaging		4 3
ECE 391 ECE 395	Computer Systems Engineering Advanced Digital Projects Lab	2 or 3	4 ECE 391 ECE 395	Computer Systems Engineering Advanced Digital Projects Lab	2 or 3	4
ECE 396	Honors Project	1 to 4	ECE 396	Honors Project	1 to 4	
ECE 397 ECE 402	Individual Study in ECE Electronic Music Synthesis	0 to 4	ECE 397 3 ECE 402	Individual Study in ECE Electronic Music Synthesis	0 to 4	3
ECE 403	Audio Engineering		3 ECE 403	Audio Engineering		3
ECE 408 ECE 411	Applied Parallel Programming Computer Organization & Design		4 ECE 408 4 ECE 411	Applied Parallel Programming Computer Organization & Design		4
ECE 412	Microcomputer Laboratory		3 ECE 412	Microcomputer Laboratory		3
ECE 414 ECE 415	Biomedical Instrumentation Biomedical Instrumentation Lab		3 ECE 414 2 ECE 415	Biomedical Instrumentation Biomedical Instrumentation Lab		3 2
ECE 416 ECE 417	Biosensors		3 ECE 416 4 ECE 417	Biosensors		3 4
ECE 417	Multimedia Signal Processing Image & Video Processing		4 ECE 417 4 ECE 418	Multimedia Signal Processing Image & Video Processing		4
ECE 419 ECE 420	Security Laboratory Embedded DSP Laboratory	3 or 4	ECE 419 2 ECE 420	Security Laboratory Embedded DSP Laboratory	3 or 4	2
ECE 422	Computer Security I		4 ECE 422	Computer Security I		4
ECE 424 ECE 425	Computer Security II Intro to VLSI System Design	3 or 4	ECE 424 3 ECE 425	Computer Security II Intro to VLSI System Design	3 or 4	3
ECE 428	Distributed Systems	3 or 4	ECE 428	Distributed Systems	3 or 4	
ECE 431 ECE 432	Electric Machinery Advanced Electric Machinery		4 ECE 431 3 ECE 432	Electric Machinery Advanced Electric Machinery		3
ECE 435 ECE 437	Computer Networking Laboratory Sensors and Instrumentation	3 or 4	ECE 435 3 ECE 437	Computer Networking Laboratory Sensors and Instrumentation	3 or 4	3
ECE 438		3 or 4	ECE 438	Communication Networks	3 or 4	3
ECE 439 ECE 441	Wireless Networks Physics & Modeling Semicond Dev	3 or 4	ECE 439 3 ECE 441	Wireless Networks Physics & Modeling Semicond Dev	3 or 4	3
ECE 443	LEDs and Solar Cells		4 ECE 443	LEDs and Solar Cells		4
ECE 444 FCF 445	IC Device Theory & Fabrication Senior Design Project Lab		4 ECE 444 4 ECE 445	IC Device Theory & Fabrication Senior Design Project Lab		4
ECE 446	Principles of Experimental Research in Electrical		4 ECE 446	Principles of Experimental Research in Electrical		4
ECE 447 ECE 448	Active Microwave Ckt Design Artificial Intelligence	3 or 4	3 ECE 447 ECE 448	Active Microwave Ckt Design Artificial Intelligence	3 or 4	3
ECE 451	Adv Microwave Measurements		3 ECE 451	Adv Microwave Measurements		3
ECE 453	Electromagnetic Fields Wireless Communication Systems		3 ECE 452 4 ECE 453	Electromagnetic Fields Wireless Communication Systems		3 4
ECE 454 ECE 455	Antennas	3 or 4	3 ECE 454 ECE 455	Antennas	3 or 4	3
ECE 456	Global Nav Satellite Systems		4 ECE 456	Global Nav Satellite Systems		4
ECE 457 ECE 458	Microwave Devices & Circuits Applic of Radio Wave Propag		3 ECE 457 3 ECE 458	Microwave Devices & Circuits Applic of Radio Wave Propag		3
ECE 459	Communications Systems		3 ECE 459	Communications Systems		3
ECE 460 ECE 461	Optical Imaging Digital Communications		4 ECE 460 3 ECE 461	Optical Imaging Digital Communications		4 3
ECE 462 ECE 463	Logic Synthesis Digital Communications Lab		3 ECE 462 2 ECE 463	Logic Synthesis Digital Communications Lab		3 2
ECE 464	Power Electronics		3 ECE 464	Power Electronics		3
ECE 465 ECE 466	Optical Communications Systems Optical Communications Lab		3 ECE 465 1 ECE 466	Optical Communications Systems Optical Communications Lab		3
ECE 467	Biophotonics		3 ECE 467	Biophotonics		3
ECE 468 ECE 469	Optical Remote Sensing Power Electronics Laboratory		3 ECE 468 2 ECE 469	Optical Remote Sensing Power Electronics Laboratory		3 2
ECE 470	Introduction to Robotics		4 ECE 470	Introduction to Robotics		4
ECE 472 ECE 473		3 or 4	3 ECE 472 ECE 473		3 or 4	3
ECE 476 ECE 478	Power System Analysis		3 ECE 476 ECE 478	Power System Analysis	3 or 4	3
ECE 480	Magnetic Resonance Imaging	3 or 4	ECE 480	Magnetic Resonance Imaging	3 or 4 3 or 4	
ECE 481 ECE 482	Nanotechnology Digital IC Design		4 ECE 481 3 ECE 482	Nanotechnology Digital IC Design		4 3
ECE 483	Analog IC Design		3 ECE 483	Analog IC Design		3
ECE 485 ECE 486	MEMS Devices & Systems Control Systems		3 ECE 485 4 ECE 486	MEMS Devices & Systems Control Systems		3 4
ECE 487	Intro Quantum Electr for EEs		3 ECE 487	Intro Quantum Electr for EEs		3
ECE 488 ECE 489	Compound Semicond & Devices Robot Dynamics and Control		3 ECE 488 4 ECE 489	Compound Semicond & Devices Robot Dynamics and Control		3 4
ECE 490 ECE 491	Introduction to Optimization	3 or 4	ECE 490 ECE 491	Introduction to Optimization	3 or 4	
ECE 492	Parallel Progrmg: Sci & Engrg	3 or 4 3 or 4	ECE 492	Parallel Progrmg: Sci & Engrg	3 or 4 3 or 4	
ECE 493 ECE 495		3 or 4	ECE 493 3 ECE 495	Advanced Engineering Math Photonic Device Laboratory	3 or 4	3
ECE 496	Senior Research Project		2 ECE 496	Senior Research Project		2
ECE 499 ECE 398	Senior Thesis Special Topics in ECE (As approved)	0 to 4	2 ECE 499 ECE 398	Senior Thesis Special Topics in ECE (As approved)	0 to 4	2
ECE 498	opecial ropics in EGE (As approved)	0 to 4	ECE 498	Special Topics in ECE (As approved)	0 to 4	
ENG 491 GEOL 107	Interdisciplinary Design Proj (CubeSat, Solar Dec Physical Geology		ENG 491 4 GEOL 107	Interdisciplinary Design Proj (CubeSat, Solar Des Physical Geology	1 to 4	4
GEOL 208	History of the Earth System Earth Materials and the Env		4 GEOL 208	History of the Earth System Earth Materials and the Env		4
GEOL 333 GEOL 380	Earth Materials and the Env Environmental Geology		4 GEOL 333 4 GEOL 380	Environmental Geology		4
GLUL 380						
GEOL 411 GEOL 417	Structural Geol and Tectonics Geol Field Methods, Western US		4 GEOL 411 6 GEOL 417	Structural Geol and Tectonics Geol Field Methods, Western US		4
GEOL 411	Structural Geol and Tectonics		6 GEOL 417			

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Petrology and Petrography
Sedimentation; and Stratingrahy
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Introduction to Geophysics
Geochemistry
Deterministic Models in Optimization
Industrial Caudity Control
Facilities Planning and Design
Frouldson Planning & Control
Design & Arhys of Experiments
Advanced Topics in Stochastic Processes & App 3 or 4
Optimization of Large Systems
3 or 4
Economic Found of Caudity System
3 or 4
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Introduction to Geophysics
Geochemistry
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Determinates Models in Optimization
Facilities Plearing and Design
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Design & Anlys of Experiments
Advanced Topics in Stuchastic Phonesses & App 3 or 4
Optimization of Large Systems
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Simulation
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IE 310
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3 IE 310
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| E 413 | Simulation |
| E 420 | Financial Engineering |
| E 431 | Design for Six Siama |
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| E 433 | Phint Systematics |
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IB 335
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                                                           IB 348
IB 368
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Sys & Integrative Physiology Cell & Membrane Physiology (2014) A Cell & Membrane Biology, Stem Cells and Requence Endocrinology Brains, Behavior & Regulation Immurology Developmental Biology, Stem Cells and Requence Endocrinology Brains, Behavior & Regulation Microbiol Genetics Microbiol Genetics Microbiol Genetics Microbiol Genetics Microbiol Genetics Microbiol Microbiol Physiology (Viology & Vall & Pathogenesia Evulution of Infectious Disease Physical Biochemistry Eularypic Cell Signaling Tempolypamics Physiology (Viology & Vall & Pathogenesia Evulution of Infectious Disease Physical Biochemistry Eularypic Cell Signaling Tempolypamics A Physiology (Viology & Vall & Pathogenesia Physiology (Viology & Viology &
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4 ME 310
4 ME 320
4 ME 330
3.5 ME 340
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3 ME 371
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ME 404
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Intermediate Gas Dynamics 
Viscous Flow & Heat Transfer 
Numerical Thermo-Fluid Mecha 
Intermediate Heat Transfer 
Failure of Engrg Materials 
Mechanical Component Failure 
Kinem & Dynamics of Mech Syst 
Introduction to Robotics
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Introduction to Robotics
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	Computer Organization & Design Senior Design Project Lab ⁶			ECE 411 ECE 445 ECE 496	Computer Organization & Design Senior Design Project Lab ⁶ Senior Research Project (and ECE 499 - Seni		4 4 4
CE 498 ne course	Special Topics in ECE (RC: Smart Phone Compu from departmentally approved list below:	0 to 4		ECE 498 One course t ECE 411	Special Topics in ECE (RC: Smart Phone Compi from departmentally approved list below:	0 to 4	4
CE 491 CE 492	Numerical Analysis Parallel Progrmg: Sci & Engrg	3 or 4 3 or 4		ECE 491 ECE 492	Numerical Analysis Parallel Progrmg: Sci & Engrg	3 or 4 3 or 4	
CE 470	Introduction to Robotics	3 or 4	4	ECE 470 ECE 478	Introduction to Robotics	3 or 4	4
		3 or 4 3 or 4		ECE 448 ECE 462		3 or 4 3 or 4	3
CE 435 CE 438 CE 439	Communication Networks	3 or 4 3 or 4 3 or 4		ECE 435 ECE 438 ECE 439	Communication Networks	3 or 4 3 or 4 3 or 4	
E 425		3 or 4		ECE 425 ECE 428		3 or 4	3
CE 422		3 or 4		ECE 422 ECE 424	Computer Security I Computer Security II	3 or 4	4
CE 412 CE 419		3 or 4		ECE 412 ECE 419	Microcomputer Laboratory Security Laboratory	3 or 4	3
E 408	Applied Parallel Programming Computer Organization & Design		4	ECE 408 ECE 411	Applied Parallel Programming Computer Organization & Design		4
5 498 5 498	Special Topics (VR: Virtual Reality) Special Topics (AML: Applied Machine Learning)			CS 498 CS 498	Special Topics (VR: Virtual Reality) Special Topics (AML: Applied Machine Learning)		
5 483 5 498	Applied Parallel Programming Special Topics (MP: Logic for Computer Science			CS 483 CS 498	Applied Parallel Programming Special Topics (MP: Logic for Computer Science		4
5 476 5 477	Formal Software Development Methods	3 or 4 3 or 4		CS 476 CS 477	Formal Software Development Methods	3 or 4 3 or 4	
5 461 5 475		3 or 4		CS 461 CS 475		3 or 4	4
5 446 5 450	Numerical Analysis	3 or 4 3 or 4		CS 446 CS 450	Numerical Analysis	3 or 4 3 or 4	
5 438 5 440	Artificial Intelligence	3 or 4 3 or 4		CS 438 CS 440	Artificial Intelligence	3 or 4	
5 431 5 436	Computer Networking Laboratory	3 or 4 3 or 4		CS 431 CS 436	Computer Networking Laboratory	3 or 4	
5 426	Compiler Construction	3 or 4		CS 426	Compiler Construction	3 or 4 3 or 4	
5 424 5 425	Real-Time Systems	3 or 4 3 or 4 3 or 4		CS 424 CS 425	Real-Time Systems	3 or 4	
5 421 5 423	Programming Languages & Compilers	3 or 4 3 or 4		CS 421 CS 423	Programming Languages & Compilers	3 or 4 3 or 4	
5 418 5 419 5 420	Production Computer Graphics	3 or 4 3 or 4 3 or 4		CS 419 CS 420	Production Computer Graphics Parallel Progrmg: Sci & Engrg	3 or 4 3 or 4 3 or 4	
5 414 5 418	Multimedia Systems	3 or 4 3 or 4		CS 414 CS 418	Multimedia Systems Interactive Computer Graphics	3 or 4 3 or 4	
5 411 5 412	Database Systems	3 or 4 3 or 4		CS 411 CS 412	Database Systems Introduction to Data Mining	3 or 4 3 or 4	-
	es from departmentally approved list of Advance Numerical Methods I	d Computi	ng E			d Computing El	ectives below:
CE 461 CE 486	Digital Communications Control Systems		3	ECE 461 ECE 486	Digital Communications Control Systems		3
CE 329 CE 340	Fields and Waves I Semiconductor Electronics		3	ECE 329 ECE 340	Fields and Waves I Semiconductor Electronics		3
CE 310 CE 330	Digital Signal Processing Power Ckts & Electromechanics		3	ECE 310 ECE 330	Digital Signal Processing Power Ckts & Electromechanics		3
	Intermediate Solid Mechanics from departmentally approved list of EE Foundati	ons Cour	ses			tions Courses	4
AM 435 AM 445	Intermediate Fluid Mechanics Continuum Mechanics		4	TAM 435 TAM 445	Intermediate Fluid Mechanics Continuum Mechanics		4
AM 335 AM 412	Introductory Fluid Mechanics Intermediate Dynamics		4	TAM 335 TAM 412	Introductory Fluid Mechanics Intermediate Dynamics		4
AM 324	Behavior of Materials		4	TAM 324	Behavior of Materials		4
AM 212 AM 251	Introductory Dynamics Introductory Solid Mechanics		3	TAM 212 TAM 251	Introductory Dynamics Introductory Solid Mechanics		3
423 424 AM 211	Mechatronics State Space Design for Control Statics		3	SE 423 SE 424 TAM 211	Mechatronics State Space Design for Control Statics		3
411 420 423	Digital Control Systems Mechatronics	4	4	SE 420 SE 423	Reliability Engineering Digital Control Systems Mechatronics		4
AT 440 411	Statistical Data Management	3 or 4 3 or 4		STAT 440 SE 411	Statistical Data Management Reliability Engineering	3 or 4 3 or 4	
TAT 428	Time Series Analysis	3 or 4 3 or 4		STAT 428 STAT 429	Statistical Computing Time Series Analysis	3 or 4 3 or 4	
AT 420 FAT 424	Analysis of Variance	3 or 4 3 or 4		STAT 420 STAT 424	Methods of Applied Statistics Analysis of Variance	3 or 4	
IS 470	Neural Bases Spch Lang	2 1	4	SHS 470	Neural Bases Spch Lang	2 4	4
15 301 15 320 15 450	Development of Spoken Language Intro Audiol & Hear Disorders		3	SHS 320 SHS 450	Development of Spoken Language Intro Audiol & Hear Disorders		3
HS 300 HS 301	Anat & Physiol Spch Mechanism General Speech Science		4	SHS 300 SHS 301	Anat & Physiol Spch Mechanism General Speech Science		4
HS 200 HS 240	General Phonetics Intro Sound & Hearing Science			SHS 200 SHS 240	General Phonetics Intro Sound & Hearing Science		3
HYS 487	Quantum Physics II			PHYS 487	Quantum Physics II Intro to Brain and Cognition		3
HYS 485 HYS 486	Atomic Phys & Quantum Theory Quantum Physics I		4	PHYS 485 PHYS 486	Atomic Phys & Quantum Theory Quantum Physics I		3
HYS 466 HYS 470	Subatomic Physics	3 or 4	4	PHYS 466 PHYS 470	Atomic Scale Simulations Subatomic Physics	3 or 4	4
HYS 460	Thermal & Statistical Physics Condensed Matter Physics		4	PHYS 460	Thermal & Statistical Physics Condensed Matter Physics	0 4	4
HYS 420 HYS 427	Space, Time, and Matter	_ 0. +	2	PHYS 420 PHYS 427	Space, Time, and Matter	- 44 -	2
HYS 406 HYS 419	Acoustical Physics of Music	3 or 4	4	PHYS 406 PHYS 419	Acoustical Physics of Music Space, Time, and Matter-ACP	3 or 4	4
HYS 402 HYS 403	Light Modern Experimental Physics	3 or 4 4 or 5		PHYS 402 PHYS 403	Light Modern Experimental Physics	3 or 4 4 or 5	
HYS 326 HYS 401	Classical Mechanics II Classical Physics Lab		3	PHYS 326 PHYS 401	Classical Mechanics II Classical Physics Lab		3
HYS 225 HYS 325	Relativity & Math Applications Classical Mechanics I		3	PHYS 325 PHYS 325	Relativity & Math Applications Classical Mechanics I		3
PRE 470 PRE 475		3 or 4		NPRE 470 NPRE 475	Fuel Cells & Hydrogen Sources Wind Power Systems	3 or 4	3
PRE 457 PRE 458	Design in NPRE	3 or 4	4	NPRE 458	Safety Anlys Nucl Reactor Syst Design in NPRE	3 or 4	4
PRE 451 PRE 455	NPRE Laboratory Neutron Diffusion & Transport		4	NPRE 451 NPRE 455	NPRE Laboratory Neutron Diffusion & Transport		3
PRE 447 PRE 448	Radiation Interact w/Matter II Nuclear Syst Engrg & Design		4	NPRE 447 NPRE 448	Radiation Interact w/Matter II Nuclear Syst Engrg & Design		3 4
PRE 444	Radiation Interact w/Matter I	2 or 3	3	NPRE 444	Nuclear Analytical Methods Lab Radiation Interact w/Matter I	2 or 3	3
PRE 442	Radioactive Waste Management	2 2	3	NPRE 442	Radioactive Waste Management	2 2	3
PRE 432 PRE 435 PRE 441	Nuclear Engrg Materials Lab Radiological Imaging Radiation Protection		3	NPRE 432 NPRE 435 NPRE 441	Radiological Imaging Radiation Protection		3
PRE 431 PRE 432	Materials in Nuclear Engrg Nuclear Engrg Materials Lab		3	NPRE 431 NPRE 432	Materials in Nuclear Engrg Nuclear Engrg Materials Lab		3
PRE 423 PRE 429	Plasma Laboratory Plasma Engineering		2	NPRE 423 NPRE 429	Plasma Laboratory Plasma Engineering		2
PRE 412 PRE 421		3 or 4		NPRE 412 NPRE 421	Nuclear Power Econ & Fuel Mgmt Plasma and Fusion Science	3 or 4	3
PRE 247 PRE 402		3 or 4		NPRE 247 NPRE 402	Modeling Nuclear Energy System Nuclear Power Engineering	3 or 4	3
PRE 201	Energy Systems	3 or 4 2 or 3		NEUR 453 NPRE 201	Cog Neuroscience of Vision Energy Systems	3 or 4 2 or 3	
IUS 409	Elec Music Techniques II	2 1	2	MUS 407 MUS 409	Elec Music Techniques II	2 4	2
IE 487 IUS 407	MEMS-NEMS Theory & Fabrication Elect Music Techniques I		4	ME 487	MEMS-NEMS Theory & Fabrication Elect Music Techniques I		4
IE 472 IE 485		3 or 4		ME 472 ME 485	Introduction to Tribology MEMS Devices & Systems	3 or 4	3
		3 or 4 3 or 4		ME 461 ME 471	Industrial Control Systems Computer Cntrl of Mech Systems Finite Element Analysis	3 or 4 3 or 4	
E 460 E 461	Industrial Control Systems						4

- ² MATH 220 may be substituted, with four of the five of resimentals ECE110 for 3 credit hours, Lip-bork version MATH 231 may be substituted. Where CS17³ is Is taken, 1 of STA140 may be substituted. Where CS17³ is Is taken, 1 of STA140 may be substituted. Advanced Composition may be satisfied by completing the substituted of the Conference of the

- ² MATH 220 may be substituted, with four of the five credit hours applying toward the decree. MATH 220 is appropriate for students with no background in calculus.

 ³ Irreshmentake EC 110 for 3 credit hours, Lib-only version taken by transfer students (with special permission) is 1 credit hour.

 MATH 213 may be substituted.

 SITA10 may be substituted.

 SITA10 may be substituted.

 SITA10 may be substituted.

 **Advanced Composition may be satisfied by completing ECE 445 or ECE 496 and ECE 499 or a course within either the general education or free elective categories which has the Advanced Composition or The Canager College of Enterients persistations.

 **The Cranager College of Enterients restrictions to The electives can be found here. Note that these credit hours could carry the required cultural studies designation required for campus general education requirements.

 **The Cranager College of Enterients restrictions to The electives can be found here.

UNIVERSITY OF ILLINOIS

Urbana-Champaign • Chicago • Springfield

University Senates Conference 378 Henry Administration Building 506 South Wright Street Urbana, IL 61801

February 26, 2020

Kathy Martensen Assistant Provost for Educational Programs 206 Swanlund, MC-304

Dear Kathy:

At its meeting on February 20, the University Senates Conference approved the proposed classification of minutes of the Urbana-Champaign Senate meeting of February 10. The Class I items are listed below.

EP.19.69	Establish a Major in Translational Medical Sciences in the Carle Illinois College of Medicine for the Degree of Master of Science
EP.20.34	Establish a Minor in Disability Studies in the Department of Kinesiology and Community Health, College of Applied Health Sciences
EP.20.44	Eliminate the BS MS in Industrial Engineering
EP.20.45	Eliminate the BS MS in Mechanical Engineering
EP.20.46	Revision of Curriculum Requirements for the Ph.D. in Civil Engineering to Add a 96-Credit Hour Option
EP.20.47	Revision of Curriculum Requirements for the Ph.D. in Environmental Engineering to Add a 96-Credit Hour Option
EP.20.48	Revision to the Master of Accounting Science (MAS) Degree Course Requirements
EP.20.49	Revision to Taxation Concentration. Revision to the Master of Accounting Science (MAS) Degree Course Requirements
EP.20.50	Revision to the Data Analytics Concentration. Revision to the Master of Accounting Science (MAS) Degree Course Requirements
EP.20.51	Financial Reporting & Assurance Concentration. Revision to the Master of Accounting Science (MAS) Degree Course Requirements

EP.20.52	Establish Joint Program in the Department of Animal Sciences for the BS/MANSC
EP.20.53	Establish a Joint BS (CS+ANSC)/MANSC Program in the Department of Animal Sciences
EP.20.54	Revise the BALAS in Classics, College of Liberal Arts and Sciences, to Eliminate the Five Ways Students Can Choose a Classics Major (Major in Classics (Without a Concentration) and the Four Concentrations in Greek, Latin, Classics, Classical Civilization, and Classical Archeology. Add Concentrations in Classical Languages and Classical Civilizations as the Only Two Options Students May Pursue a Classics Major
EP.20.55	Revise the BALAS in Classics, College of Liberal Arts and Sciences, Classical Archeology
EP.20.56	Revise the BALAS in Classics, College of Liberal Arts and Sciences, Classical Civilization
EP.20.57	Elimination of the Undergraduate Minor: Classical Archaeology. In Conjunction with the Elimination of Three Other Undergraduate Minors in the Department of Classics: Classical Civilization, Greek, Latin; and the Creation of Two Minors: Classical Civilizations and Classical Languages
EP.20.58	Elimination of the Undergraduate Minor: Greek Minor
EP.20.59	Elimination of the Undergraduate Minor: Classical Civilization
EP.20.60	Elimination of the Undergraduate Minor: Latin Minor
EP.20.61	Creation of a new Undergraduate Minor: Classical Civilizations
EP.20.62	Creation of a new Undergraduate Minor: Classical Languages
EP.20.63	Revise the BALAS in Classics, Classical Civilizations
EP.20.64	Revise the BALAS in Classics, Classical Languages
EP.20.65	Revising EdD Degree Program Course and Exam Requirement
EP.20.66	Revise the Minor in German, Department of Germanic Languages and Literatures
EP.20.67	Revise the BALAS in Classics
EP.20.68	Revise the BALAS in Classics: Latin

EP.20.69	Establish a New Master of Science (M.S.) in Mental Health Counseling in the Department of Educational Psychology, College of Education
EP.20.70	Proposal to Establish a New Bachelor of Science Degree with a Major in Plant Biotechnology (B.S. in Plant Biotech) in the Department of Crop Sciences, College of Agricultural, Consumer and Environmental Sciences
EP.20.71	Revision to the Chemistry Minor
EP.20.72	Urban Studies & Planning: Social Justice
EP.20.75	Remove Art History PhD, Art Education PhD, and Education Policy, Organization, and Leadership MA, EdM, and CAS from a List of Programs Participating in the Writing Studies Floating Concentration
EP.20.76	Create a new Minor in German Business and Commercial Studies
EP.20.77	Computer Science & Philosophy, BSLAS (Revisions to the BSLAS in Computer Science & Philosophy, Department of Philosophy)
EP.20.78	Computer Science Minor
EP.20.79	New Proposal for BFA in Theatre: Arts & Entertainment Technology
EP.20.80	Revising Requirements for BFA in Theatre: Scenic Design
EP.20.81	Revising Requirements for BFA in Theatre: Sound Design & Technology
EP.20.82	Revising Requirements for BFA in Theatre: Lighting Design & Technology
EP.20.83	Revising Requirements for BFA in Theatre: Scenic Technology
EP.20.84	Revising Requirements for BFA in Theatre: Costume Design & Technology
EP.20.85	Revising Requirements for BFA in Theatre: Acting
EP.20.86	Revising Requirements for BFA in Theatre
EP.20.87	Revising Requirements for BFA in Theatre: Theatre Studies
EP.20.88	Revising Requirements for BFA in Theatre: Stage Management
EP.20.89	Revising Requirements in Theatre Minor, UG

EP.20.90	Computer Science & Astronomy, BSLAS (Revise the BSLAS in Computer Science & Astronomy, College of Liberal Arts and Sciences)	
EP.20.91	Revising Requirements for BS in Civil Engineering	
EP.20.92	Revising Requirements for BS in Computer Engineering	
EP.20.93	Revising Requirements for BSAG in Agricultural and Biological Engineering	
EP.20.94	Revising Requirements for BS in Agricultural and Biological Engineering	
EP.20.95	Revising Requirements for BS in Agricultural & Biological Engineering: Agricultural Engineering	
EP.20.96	Revising Requirements for BS in Agricultural & Biological Engineering: Biological Engineering	
EP.20.97	Revising Requirements for BS in Computer Science	
EP.20.98	Revising Requirements for BS in Electrical Engineering	
EP.20.99	Revising Requirements for BS in Engineering Mechanics	
EP.20.100	Revising Requirements for BS in Engineering Physics	
EP.20.101	Revising Requirements for BS in Systems Engineering & Design	
EP.20.102	Revising Requirements for BS in Nuclear, Plasma, and Radiological Engineering	
EP.20.103	Revising Requirements for BS in Mechanical Engineering	
EP.20.104	Revising Requirements for BS in Materials Science & Engineering	
SP.20.09	Proposed Revision to the <i>Constitution</i> , Article II, Section 1.b; Article III, Section 1; and Article IV, Section 1 Sincerely,	

0.

Connie Sailor Administrative Aide

c: Ellen Foran, Renee Nagy Julian Parrott Jenny Roether Nathan Wilds

10KP0115BS: ELECTRICAL ENGINEERING, BS

In Workflow

- 1. U Program Review (dforgacs@illinois.edu; eastuby@illinois.edu; aledward@illinois.edu)
- 2. 1933 Head (b-hajek@illinois.edu; oelze@illinois.edu; erhan@illinois.edu)
- 3. KP Committee Chair (bsnewell@illinois.edu; danko@illinois.edu; kcp@illinois.edu; jmakela@illinois.edu)
- 4. KP Dean (candyd@illinois.edu)
- 5. University Librarian (jpwilkin@illinois.edu)
- 6. Provost (kmartens@illinois.edu)
- 7. Senate EPC (bjlehman@illinois.edu; moorhouz@illinois.edu; kmartens@illinois.edu)
- 8. Senate (jtempel@illinois.edu)
- 9. U Senate Conf (none)
- 10. Board of Trustees (none)
- 11. IBHE (none)
- 12. DMI (eastuby@illinois.edu; aledward@illinois.edu; dforgacs@illinois.edu)

Approval Path

- 1. Wed, 24 Feb 2021 21:59:29 GMT Deb Forgacs (dforgacs): Approved for U Program Review
- 2. Wed, 24 Feb 2021 22:01:23 GMT
 - E Kudeki (erhan): Approved for 1933 Head
- 3. Tue, 09 Mar 2021 19:48:51 GMT
 - Brooke Newell (bsnewell): Approved for KP Committee Chair
- 4. Tue, 09 Mar 2021 19:51:08 GMT
 - Candy Deaville (candyd): Approved for KP Dean
- 5. Tue, 09 Mar 2021 20:22:25 GMT
 - John Wilkin (jpwilkin): Approved for University Librarian
- 6. Wed, 10 Mar 2021 21:48:25 GMT
 - Kathy Martensen (kmartens): Rollback to KP Dean for Provost
- 7. Wed, 10 Mar 2021 21:52:01 GMT
 - Candy Deaville (candyd): Rollback to KP Committee Chair for KP Dean
- 8. Thu, 18 Mar 2021 20:24:12 GMT
 - Brooke Newell (bsnewell): Approved for KP Committee Chair
- 9. Thu, 18 Mar 2021 20:29:34 GMT
 - Candy Deaville (candyd): Approved for KP Dean
- 10. Thu, 18 Mar 2021 20:31:37 GMT
 - John Wilkin (jpwilkin): Approved for University Librarian
- 11. Mon, 22 Mar 2021 19:01:54 GMT
 - Kathy Martensen (kmartens): Approved for Provost

History

- 1. Apr 23, 2019 by Deb Forgacs (dforgacs)
- 2. Aug 12, 2019 by Deb Forgacs (dforgacs)
- 3. Feb 26, 2020 by Brooke Newell (bsnewell)
- 4. Mar 31, 2020 by Deb Forgacs (dforgacs)
- 5. Apr 14, 2020 by Deb Forgacs (dforgacs)

Date Submitted:Tue, 23 Feb 2021 22:10:04 GMT

Viewing:10KP0115BS: Electrical Engineering, BS

Changes proposed by: E Kudeki

Proposal Type

Brooke Newell

Proposal Type:
Major (ex. Special Education)
This proposal is for a:
Revision
Proposal Title:
If this proposal is one piece of a multi-element change please include the other impacted programs here.example: A BS revision with multiple concentration revisions
Administrative approval: Minor revision in Electrical Engineering BS curriculum: Updating courses in the Foundational Mathematics and Science requirements and the Technical Electives list.
EP Control Number
EP.21.100
Official Program Name
Electrical Engineering, BS
Effective Catalog Term
Fall 2021
Sponsor College
Grainger College of Engineering
Sponsor Department
Electrical and Computer Engineering
Sponsor Name
Erhan Kudeki
Chancas Fresil
Sponsor Email
erhan@illinois.edu
College Contact
conege contact

College Contact Email

bsnewell@illinois.edu

Program Description and Justification

Justification for proposal change:

The proposal is for.

- 1) Replacing MATH 286 by the sequence of (MATH 257 or MATH 416) and MATH 285, and
- 2) Adding ATMS 201, CPSC 265, PSYC 204 as technical electives

With these changes, the credit hours under the Foundational Math and Science section will increase from 31 to 33 hours, whereby the credit hours under the Technical Electives will reduce from 32 to 30 hours. As such, there is a net zero change of overall credit hours.

Justification: The Math department is developing MATH 257 as the eventual replacement for MATH 415, with the same theoretical content, but with an emphasis on using programming to perform matrix operations instead of calculating them on paper. All fields of Electrical and Computer Engineering require linear algebra, and many advanced courses in EE and CE degree programs currently re-teach the same linear algebra concepts. Requiring Math at the beginning of the

g additional options

that are required for 19-2020/#GC5).

Admission Requirements

Desired Effective Admissions Term Fall 2021
Is this revision a change to the admission status of the program?
Enrollment
Describe how this revision will impact enrollment and degrees awarded. No impact.
Estimated Annual Number of Degrees Awarded
What is the matriculation term for this program?
What is the typical time to completion of this program? 4 years
What are the minimum Total Credit Hours required for this program? 128 hours
Delivery Method
Is this program available on campus and online?
This program is available: On Campus
Budget

Are there budgetary implications for this revision?

Will the program or revision require staffing (faculty, advisors, etc.) beyond what is currently available? No
Resource Implications
Facilities
Will the program require new or additional facilities or significant improvements to already existing facilities? No
Technology
Will the program need additional technology beyond what is currently available for the unit? No
Non-Technical Resources
Will the program require additional supplies, services or equipment (non-technical)? No
Resources
For each of these items, be sure to include in the response if the proposed new program or change will result in replacement of another program(s) If so, which program(s), what is the anticipated impact on faculty, students, and instructional resources? Please attach any letters of support/acknowledgement from faculty, students, and/or other impacted units as appropriate.
Faculty Resources
Please address the impact on faculty resources including any changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc Describe how the unit will support student advising, including job placement and/or admission to advanced studies. No impact
Library Resources
Describe your proposal's impact on the University Library's resources, collections, and services. If necessary please consult with the appropriate disciplinary specialist within the University Library.

No impact

Instructional Resources

Will there be any reduction in other course offerings, programs or concentrations by your department as a result of this new program/proposed change?

No

Does the program include other courses/subjects impacted by the creation/revision of this program?

Yes

Required courses

MATH 285 - Intro Differential Equations

Explain how the inclusion or removal of the courses/subjects listed above impacts the offering departments.

MATH 257 will be added to the CE program as a required course to be taken after MATH 220. MATH 416 will be an alternative to MATH 257 requirement. Also MATH 286 will be discontinued and replaced by MATH 285. See attached letter of support from Mathematics.

Attach letters of support from other departments.

Support letter for ECE revision.pdf
Electrical Engineering BS Support Doc CPSC LOS.docx
Electrical Engineering BS Support Doc ATMS Support Letter.pdf
Electrical Engineering BS Support Doc PSYC LOS.docx

Financial Resources

How does the unit intend to financially support this proposal?

No financial impact is expected.

Will the unit need to seek campus or other external resources?

No

Are you seeking a change in the tuition rate or differential for this program?

Yes

Program Regulation and Assessment

Briefly describe the plan to assess and improve student learning, including the program's learning objectives; when, how, and where these learning objectives will be assessed; what metrics will be used to signify student's achievement of the stated learning objectives; and the process to ensure assessment results are used to improve student learning. (Describe how the program is aligned with or meets licensure, certification, and/or entitlement requirements, if applicable).

EE BS program is ABET Accredited.

The Program Educational Objectives of the EE program presented to ABET is as follows:

The University of Illinois Electrical Engineering program will produce graduates having the choice, talents, and knowledge to:

- 1. Pursue a diverse range of careers as engineers, consultants, and entrepreneurs.
- 2. Continue their education in leading graduate programs in engineering and interdisciplinary areas to emerge as researchers, experts, and educators.
- 3. Learn and create new knowledge in ever-changing environments of the 21st century, and communicate their work and ideas to colleagues and the public at large.
- 4. Practice and inspire high ethical and technical standards, and lead their professional disciplines, organizations, and communities globally.

All four of these objectives require a student to possess all seven of the skills listed as Student Outcomes of our program (see below). The particular career paths listed in the first two objectives are engineers, consultants, entrepreneurs — reachable directly after the B.S. degree — as well as researchers, experts, and educators, typically for those graduates who choose to continue their education in some graduate program. Each of these six career choices will critically depend on students acquiring all seven of the particular skills enumerated as Student Outcomes, namely.

- 1. (Principles) an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- 2. (Design) an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- 3. (Communication) an ability to communicate effectively with a range of audiences.
- 4. (Professionalism) an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- 5. (Teamwork) an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- 6. (Analysis) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- 7. (Learning) an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Student's achievement of these objectives and outcomes are monitored and assessed using using a strategy that depends on Self-Assessment reports written by ECE instructors and course directors as well as student and alumni surveys.

Is the career/profession for graduates of this program regulated by the State of Illinois?

No

Program of Study

"Baccalaureate degree requires at least 120 semester credit hours or 180 quarter credit hours and at least 40 semester credit hours (60 quarter credit hours) in upper division courses" (source: https://www.ibhe.org/assets/files/PrivateAdminRules2017.pdf). For proposals for new bachelor's degrees, if this minimum is not explicitly met by specifically-required 300- and/or 400-level courses, please provide information on how the upper-division hours requirement will be satisfied.

All proposals must attach the new or revised version of the Academic Catalog program of study entry. Contact your college office if you have questions.

Revised programs

EE_rev_sideBYside.xlsx

Attach a side-by-side comparison with the existing program AND, if the revision references or adds "chose-from" lists of courses students can select from to fulfill requirements, a listing of these courses, including the course rubric, number, title, and number of credit hours.

Catalog Page Text

Catalog Page Text: Description of program for the catalog page. This is not official content, it is used to help build the catalog pages for the program. Can be edited in the catalog by the college or department.

Electrical engineering is a multifaceted discipline that over the last century has produced an astounding progression of technological innovations that have shaped virtually every aspect of modern life. Electrical engineers need a broad and solid foundation in mathematics and physics to support their education in the engineering principles of analysis, synthesis, design, implementation, and testing of the devices and systems that provide the bedrock of modern energy, communication, sensing, computing, medical, security, and defense infrastructures. Within each subdiscipline one can find application domains that strongly rely on hands-on experimental work or that are based on theoretical, mathematical and computational approaches. The multidisciplinary nature of the electrical engineering education addresses the growing demand for the innovation and design of sensing, communication, computing, and decision-making systems of increasing complexity in consumer, defense, and medical applications.

The curriculum starts with a core of fundamental courses on circuits, electromagnetics, solid-state electronics, and computer systems, leading to a comprehensive array of specialized courses and laboratories in all of the important areas of modern electrical engineering.

Statement for Programs of Study Catalog

Graduation Requirements

Minimum Technical GPA (https://wiki.illinois.edu/wiki/display/ugadvise/Degree+Requirements/#DegreeRequirements-TechnicalGPARequirement):2.0

TGPA is required for ECE courses (except ECE 316). SeeTechnical GPA (https://wiki.illinois.edu/wiki/display/ugadvise/Degree+Requirements/#DegreeRequirements-TechnicalGPARequirement) to clarify requirements.

Minimum Overall GPA:2.0

Minimum hours required for graduation:128 hours

General education: Students must complete the Campus General Education (https://courses.illinois.edu/gened/DEFAULT/

DEFAULT/)requirements including the campus general education language requirement. Specific Advanced Composition courses required for this degree are listed below.

Orientation and Professional Development

Code	Title	Hours
ENG 100	Engineering Orientation ¹	0
Total Hours		0

Foundational Mathematics and Science

Code	Title	Hours
CHEM 102	General Chemistry I	3
CHEM 103	General Chemistry Lab I	1
MATH 221	Calculus I ²	4
MATH 231	Calculus II	3
MATH 257	Linear Algebra with Computational Applications (Linear Algebra)	3
or MATH 416	Abstract Linear Algebra	
MATH 241	Calculus III	4
MATH 286	Intro to Differential Eq Plus	4
MATH 285	Intro Differential Equations	3
PHYS 211	University Physics: Mechanics	4
PHYS 212	University Physics: Elec & Mag	4
PHYS 213	Univ Physics: Thermal Physics	2
PHYS 214	Univ Physics: Quantum Physics	2
Total Hours		33

Electrical Engineering Technical Core

Code	Title	Hours
ECE 110	Introduction to Electronics ³	3
ECE 120	Introduction to Computing	4
ECE 220	Computer Systems & Programming	4

ECE 210	Analog Signal Processing	4
ECE 313	Probability with Engrg Applic ⁴	3
ECE 329	Fields and Waves I	3
ECE 340	Semiconductor Electronics	3
ECE 385	Digital Systems Laboratory	3
ECE 445	Senior Design Project Lab ^{5,6}	4
Total Hours		31
Technical Flectives		

Technical Electives

Code	Title	Hours
30 hours, to include:		
Non-ECE courses from list below:		6
AE 202	Aerospace Flight Mechanics	3
AE 302	Aerospace Flight Mechanics II	3
AE 311	Incompressible Flow	3
AE 312	Compressible Flow	3
AE 321	Mechs of Aerospace Structures	3
AE 352	Aerospace Dynamical Systems	3
AE 353	Aerospace Control Systems	3
AE 402	Orbital Mechanics	3 or 4
AE 403	Spacecraft Attitude Control	3 or 4
AE 410	Computational Aerodynamics	3 or 4
AE 412	Viscous Flow & Heat Transfer	4
AE 416	Applied Aerodynamics	3 or 4
AE 419	Aircraft Flight Mechanics	3 or 4
AE 420	Finite Element Analysis	3 or 4
AE 427	Mechanics of Polymers	3
AE 428	Mechanics of Composites	3
AE 433	Aerospace Propulsion	3 or 4
AE 434	Rocket Propulsion	3 or 4
AE 435	Electric Propulsion	3 or 4
AE 451	Aeroelasticity	3 or 4
AE 460	Aerodynamics & Propulsion Lab	2
Ag and Bio Eng All 300 and 400 leveliewed in the Advising Office	vel courses exceptABE 440. Except seminars and special topics courses, which may be	
ASTR 210	Introduction to Astrophysics	3
ASTR 310	Computing in Astronomy	3
ASTR 330	Extraterrestrial Life	3
ASTR 350	The Big Bang, Black Holes, and the End of the Universe	3
ASTR 404	Stellar Astrophysics	3
ASTR 405	Planetary Systems	3
ASTR 406	Galaxies and the Universe	3
ASTR 414	Astronomical Techniques	4
ASTR 450	Astrochemistry	4
ATMS 201	General Physical Meteorology	3
ATMS 301	Atmospheric Thermodynamics	3
ATMS 302	Atmospheric Dynamics I	3
ATMS 303	Synoptic-Dynamic Wea Analysis	4
ATMS 304	Radiative Transfer-Remote Sens	3
ATMS 305	Computing and Data Analysis	3
ATMS 404	Risk Analysis in Earth Science	3 or 4
ATMS 405	Boundary Layer Processes	4

ATMS 406	Tropical Meteorology	4
ATMS 410	Radar Remote Sensing	4
ATMS 411	Satellite Remote Sensing	4
ATMS 420	Atmospheric Chemistry	4
ATMS 421	Earth Systems Modeling	4
ATMS 425	Air Quality Modeling	4
ATMS 447	Climate Change Assessment	3
ATMS 449	Biogeochemical Cycles	4
BIOC 406	Gene Expression & Regulation	3
BIOC 440	Physical Chemistry Principles	4
BIOC 446	Physical Biochemistry	3
BIOC 455	Technqs Biochem & Biotech	4
BIOE 201	Conservation Principles Bioeng	3
BIOE 202	Cell & Tissue Engineering Lab	2
BIOE 302	Modeling Human Physiology	3
BIOE 414	Biomedical Instrumentation	3
BIOE 415	Biomedical Instrumentation Lab	2
BIOE 461	Cellular Biomechanics	4
BIOE 467	Biophotonics	3
BIOE 476	Tissue Engineering	3
BIOE 480	Magnetic Resonance Imaging	3 or 4
Biophysics (BIOP): All 400 level coul Office.	rses except seminars and special topics courses, which may be reviewed in the Advising	
CHBE 221	Principles of CHE	3
CHBE 321	Thermodynamics	4
CHBE 421	Momentum and Heat Transfer	4
CHBE 422	Mass Transfer Operations	4
CHBE 424	Chemical Reaction Engineering	3
CHBE 430	Unit Operations Laboratory	4
CHBE 431	Process Design	4
CHBE 440	Process Control and Dynamics	3
CHBE 451	Transport Phenomena	3
CHBE 452	Chemical Kinetics & Catalysis	3
CHBE 453	Electrochemical Engineering	2 or 3
CHBE 456	Polymer Science & Engineering	3
CHBE 457	Microelectronics Processing	3
CHBE 471	Biochemical Engineering	3 or 4
CHBE 472	Techniques in Biomolecular Eng	3 or 4
CHBE 473	Biomolecular Engineering	3 or 4
CHBE 474	Metabolic Engineering	3 or 4
CHEM 104	General Chemistry II	3
CHEM 105	General Chemistry Lab II	1
	400 level except 397, 497, and 499. Exceptions also include seminars and special topics,	
CEE 310	Transportation Engineering	3
CEE 330	Environmental Engineering	3
CEE 408	Railroad Transportation Engrg	3 or 4
CEE 410	Railway Signaling & Control	3 or 4
CEE 416		3 or 4
CEE 430	Traffic Capacity Analysis Ecological Quality Engineering	3 01 4
CEE 447	Ecological Quality Engineering	
	Atmospheric Chemistry Decision and Risk Analysis	2 0 4
CEE 491	Decision and Disk Analysis	3 or 4

CPSC 265	Genetic Engineering Lab	3
CS 101	Intro Computing: Engrg & Sci (By Approval)	3
CS 173	Discrete Structures	3
CS 225	Data Structures	4
CS 242	Programming Studio	3
CS 357	Numerical Methods I	3
CS 410	Text Information Systems	3 or 4
CS 411	Database Systems	3 or 4
CS 412	Introduction to Data Mining	3 or 4
CS 413	Intro to Combinatorics	3 or 4
CS 414	Multimedia Systems	3 or 4
CS 418	Interactive Computer Graphics	3 or 4
CS 419	Production Computer Graphics	3 or 4
CS 420	Parallel Progrmg: Sci & Engrg	3 or 4
CS 421	Programming Languages & Compilers	3 or 4
CS 422	Programming Language Design	3 or 4
CS 423	Operating Systems Design	3 or 4
CS 424	Real-Time Systems	3 or 4
CS 425	Distributed Systems	3 or 4
CS 426	Compiler Construction	3 or 4
CS 427	Software Engineering I	3 or 4
CS 428	Software Engineering II	3 or 4
CS 429	Software Engineering II, ACP	3
CS 431	Embedded Systems	3 or 4
CS 433	Computer System Organization	3 or 4
CS 436	Computer Networking Laboratory	3 or 4
CS 438	Communication Networks	3 or 4
CS 439	Wireless Networks	3 or 4
CS 440	Artificial Intelligence	3 or 4
CS 445	Computational Photography	3 or 4
CS 446	Machine Learning	3 or 4
CS 447	Natural Language Processing	3 or 4
CS 450	Numerical Analysis	3 or 4
CS 460	Security Laboratory	3 or 4
CS 461	Computer Security I	4
CS 463	Computer Security II	3 or 4
CS 465	User Interface Design	3 or 4
CS 466	Introduction to Bioinformatics	3 or 4
CS 467	Social Visualization	3 or 4
CS 473	Algorithms	4
CS 475	Formal Models of Computation	3 or 4
CS 476	Program Verification	3 or 4
CS 477	Formal Software Development Methods	3 or 4
CS 481	Advanced Topics in Stochastic Processes & Applications	3 or 4
CS 484	Parallel Programming	3 or 4
CS 398	Special Topics (As Approved)	1 to 4
CS 498	Special Topics (As Approved)	1 to 4
ECE 297	Individual Study	1
ECE 304	Photonic Devices	3
ECE 307	Techniques for Engrg Decisions	3
ECE 310	Digital Signal Processing	3
ECE 311	Digital Signal Processing Lab	1

ECE 314	Probability in Engineering Lab	1
ECE 329	Fields and Waves I	3
ECE 330	Power Ckts & Electromechanics	
ECE 333	Green Electric Energy	3
ECE 340	Semiconductor Electronics	3
ECE 342	Electronic Circuits	3
ECE 343	Electronic Circuits Laboratory	1
ECE 350	Fields and Waves II	3
ECE 365	Data Science and Engineering	3
ECE 374	Introduction to Algorithms & Models of Computation	4
ECE 380	Biomedical Imaging	3
ECE 391	Computer Systems Engineering	4
ECE 395	Advanced Digital Projects Lab	2 or 3
ECE 396	Honors Project	1 to 4
ECE 397	Individual Study in ECE	0 to 4
ECE 402	Electronic Music Synthesis	
ECE 403	·	3
	Audio Engineering	3
ECE 408	Applied Parallel Programming	4
ECE 411	Computer Organization & Design	4
ECE 412	Microcomputer Laboratory	3
ECE 414	Biomedical Instrumentation	3
ECE 415	Biomedical Instrumentation Lab	2
ECE 416	Biosensors	3
ECE 417	Multimedia Signal Processing	4
ECE 418	Image & Video Processing	4
ECE 419	Security Laboratory	3 or 4
ECE 420	Embedded DSP Laboratory	2
ECE 422	Computer Security I	4
ECE 424	Computer Security II	3 or 4
ECE 425	Intro to VLSI System Design	3
ECE 428	Distributed Systems	3 or 4
ECE 431	Electric Machinery	4
ECE 432	Advanced Electric Machinery	3
ECE 435	Computer Networking Laboratory	3 or 4
ECE 437	Sensors and Instrumentation	3
ECE 438	Communication Networks	3 or 4
ECE 439	Wireless Networks	3 or 4
ECE 441	Physcs & Modeling Semicond Dev	3
ECE 443	LEDs and Solar Cells	4
ECE 444	IC Device Theory & Fabrication	4
ECE 445	Senior Design Project Lab	4
ECE 446	Principles of Experimental Research in Electrical Engineering	4
ECE 447	Active Microwave Ckt Design	3
ECE 448	Artificial Intelligence	3 or 4
ECE 451	Adv Microwave Measurements	3
ECE 452	Electromagnetic Fields	3
ECE 453	Wireless Communication Systems	4
ECE 454	Antennas	3
ECE 455	Optical Electronics	3 or 4
ECE 456	Global Nav Satellite Systems	4
ECE 457	Microwave Devices & Circuits	3
ECE 458	Applic of Radio Wave Propag	3

ECE 459	Communications Systems	3
ECE 460	Optical Imaging	4
ECE 461	Digital Communications	3
ECE 462	Logic Synthesis	3
ECE 463	Digital Communications Lab	2
ECE 464	Power Electronics	3
ECE 465	Optical Communications Systems	3
ECE 466	Optical Communications Lab	1
ECE 467	Biophotonics	3
ECE 468	Optical Remote Sensing	3
ECE 469	Power Electronics Laboratory	2
ECE 470	Introduction to Robotics	4
ECE 472	Biomedical Ultrasound Imaging	3
ECE 473	Fund of Engrg Acoustics	3 or 4
ECE 476	Power System Analysis	3
ECE 478	Formal Software Development Methods	3 or 4
ECE 480	Magnetic Resonance Imaging	3 or 4
ECE 481	Nanotechnology	4
ECE 482	Digital IC Design	3
ECE 483	Analog IC Design	3
ECE 485	MEMS Devices & Systems	3
ECE 486	Control Systems	4
ECE 487	Intro Quantum Electr for EEs	3
ECE 488	Compound Semicond & Devices	3
ECE 489	Robot Dynamics and Control	4
ECE 490	Introduction to Optimization	3 or 4
ECE 491	Numerical Analysis	3 or 4
ECE 492	Parallel Progrmg: Sci & Engrg	3 or 4
ECE 493	Advanced Engineering Math	3 or 4
ECE 495	Photonic Device Laboratory	3
ECE 496	Senior Research Project	2
ECE 499	Senior Thesis	2
ECE 398	Special Topics in ECE (As approved)	0 to 4
ECE 498	Special Topics in ECE (As approved)	0 to 4
ENG 491	Interdisciplinary Design Proj (CubeSat, Solar Decathlon, Formula SAE, Baja SAE, or by Approval.)	1 to 4
GEOL 107	Physical Geology	4
GEOL 208	History of the Earth System	4
GEOL 333	Earth Materials and the Env	4
GEOL 380	Environmental Geology	4
GEOL 411	Structural Geol and Tectonics	4
GEOL 417	Geol Field Methods, Western US	6
GEOL 432	Mineralogy and Mineral Optics	4
GEOL 436	Petrology and Petrography	4
GEOL 440	Sedimentology and Stratigraphy	4
GEOL 450	Probing the Earth's Interior	3
GEOL 452	Introduction to Geophysics	4
GEOL 460	Geochemistry	3
IE 310	Deterministic Models in Optimization	3
IE 330	Industrial Quality Control	3
IE 360	Facilities Planning and Design	3
IE 361	Production Planning & Control	3
	-	

IE 400	Design & Anlys of Experiments	3 or 4
IE 410	Advanced Topics in Stochastic Processes & Applications	3 or 4
IE 411	Optimization of Large Systems	3 or 4
IE 412	OR Models for Mfg Systems	3 or 4
IE 413	Simulation	3 or 4
IE 420	Financial Engineering	3 or 4
IE 430	Economic Found of Quality Syst	3 or 4
IE 431	Design for Six Sigma	3
IB 150	Organismal & Evolutionary Biol	4
IB 202	Physiology	3 or 4
IB 203	Ecology	4
IB 204	Genetics	3 or 4
IB 302	Evolution	4
IB 335	Plant Systematics	4
IB 348	Fish and Wildlife Ecology	3
IB 368	Vertebrate Natural History	4
IB 401	Introduction to Entomology	3 or 4
IB 405	Evolution of Traits and Genomes	
IB 420		3
	Plant Physiology	3
IB 421	Photosynthesis	3
IB 426	Env and Evol Physicians	3
IB 427	Insect Physiology	4
IB 431	Behavioral Ecology	3
IB 432	Genes and Behavior	3
IB 440	Plants and Global Change	3
IB 443	Evolutionary Ecology	3
IB 444	Insect Ecology	3 or 4
IB 451	Conservation Biology	4
IB 452	Ecosystem Ecology	3
IB 453	Community Ecology	3
IB 461	Ornithology	4
IB 462	Mammalogy	4
IB 463	Ichthyology	4
IB 464	Herpetology	4
IB 467	Principles of Systematics	4
IB 468	Insect Classification and Evol	4
IB 471	General Mycology	4
IB 472	Plant Molecular Biology	1
IB 473	Plant Genomics	1
IB 481	Vector-borne Diseases	4
IB 482	Insect Pest Management	3
IB 483	Insect Pathology	3
IB 485	Environ Toxicology & Health	3
IB 486	Pesticide Toxicology	3 or 4
LING 300	Anat & Physiol Spch Mechanism	4
LING 406	Introduction to Computational Linguistics	3 or 4
LING 407	Logic and Linguistic Analysis	3 or 4
LING 427	Language and the Brain	3 or 4
MSE 280	Engineering Materials	3
Material Science and Eng. (MSE) topics courses can be reviewed in): All 300 and 400 level courses except 304, 460, and 461. Exceptions of seminar and special in the Advising Office.	
MATH 213	Basic Discrete Mathematics	3

MATH 347	Fundamental Mathematics	2
MATH 347 MATH 348	Fundamental Mathematics-ACP	3
MATH 357	Numerical Methods I	3
MATH 402	Non Euclidean Geometry	3 or 4
MATH 403	Euclidean Geometry	3 or 4
MATH 412	Graph Theory	3 or 4
MATH 413	Intro to Combinatorics	3 or 4
MATH 413		3 or 4
	Mathematical Logic	
MATH 415 MATH 416	Applied Linear Algebra	3 or 4 3 or 4
	Abstract Linear Algebra	
MATH 417	Intro to Abstract Algebra	3 or 4
MATH 418	Intro to Abstract Algebra II	3 or 4
MATH 423	Differential Geometry	3 or 4
MATH 424	Honors Real Analysis	3
MATH 425	Honors Advanced Analysis	3
MATH 427	Honors Abstract Algebra	3
MATH 428	Honors Topics in Mathematics	3
MATH 432	Set Theory and Topology	3 or 4
MATH 442	Intro Partial Diff Equations	3 or 4
MATH 444	Elementary Real Analysis	3 or 4
MATH 446	Applied Complex Variables	3 or 4
MATH 447	Real Variables	3 or 4
MATH 448	Complex Variables	3 or 4
MATH 450	Numerical Analysis	3 or 4
MATH 453	Elementary Theory of Numbers	3 or 4
MATH 473	Algorithms	4
MATH 475	Formal Models of Computation	3 or 4
MATH 481	Vector and Tensor Analysis	3 or 4
MATH 482	Linear Programming	3 or 4
MATH 484	Nonlinear Programming	3 or 4
MATH 487	Advanced Engineering Math	3 or 4
MATH 489	Dynamics & Differential Eqns	3 or 4
MCB 150	Molec & Cellular Basis of Life	4
MCB 250	Molecular Genetics	3
MCB 251	Exp Techniqs in Molecular Biol	2
MCB 252	Cells, Tissues & Development	3
MCB 253	Exp Techniqs in Cellular Biol	2
MCB 300	Microbiology	3
MCB 301	Experimental Microbiology	3
MCB 314	Introduction to Neurobiology	3
MCB 316	Genetics and Disease	4
MCB 354	Biochem & Phys Basis of Life	3
MCB 400	Cancer Cell Biology	3
MCB 401	Cellular Physiology	3
MCB 402	Sys & Integrative Physiology	3
MCB 403	Cell & Membrane Physiology Lab	1 or 2
MCB 404	Sys & Integrative Physiol Lab	1 to 2
MCB 406	Gene Expression & Regulation	3
MCB 408	Immunology	3
MCB 410	Developmental Biology, Stem Cells and Regenerative Medicine	3
MCB 413	Endocrinology	3
MCB 419	Brain, Behavior & Info Process	3

MCB 421	Microbial Genetics	3
MCB 424	Microbial Biochemistry	3
MCB 426	Bacterial Pathogenesis	3
MCB 430	Molecular Microbiology	3
MCB 431	Microbial Physiology	3
MCB 433	Virology & Viral Pathogenesis	3
MCB 435	Evolution of Infectious Disease	3
MCB 446	Physical Biochemistry	3
MCB 480	Eukaryotic Cell Signaling	3
ME 200	Thermodynamics	3
ME 310	Fundamentals of Fluid Dynamics	4
ME 320	Heat Transfer	4
ME 330	Engineering Materials	4
ME 340	Dynamics of Mechanical Systems	3.5
ME 370	Mechanical Design I	3
ME 371	Mechanical Design II	3
ME 400	Energy Conversion Systems	3 or 4
ME 401	Refrigeration and Cryogenics	3 or 4
ME 402	Design of Thermal Systems	3 or 4
ME 403	Internal Combustion Engines	3 or 4
ME 404	Intermediate Thermodynamics	4
ME 410	Intermediate Gas Dynamics	3 or 4
ME 411	Viscous Flow & Heat Transfer	4
ME 412	Numerical Thermo-Fluid Mechs	2 to 4
ME 420	Intermediate Heat Transfer	4
ME 430	Failure of Engrg Materials	3 or 4
ME 431	Mechanical Component Failure	3 or 4
ME 440	Kinem & Dynamics of Mech Syst	3 or 4
ME 445	Introduction to Robotics	4
ME 450	Modeling Materials Processing	3
ME 451	Computer-Aided Mfg Systems	3 or 4
ME 452	Num Control of Mfg Processes	3 or 4
ME 460	Industrial Control Systems	4
ME 461	Computer Cntrl of Mech Systems	3 or 4
ME 471	Finite Element Analysis	3 or 4
ME 472	Introduction to Tribology	3 or 4
ME 485	MEMS Devices & Systems	3
ME 487	MEMS-NEMS Theory & Fabrication	4
MUS 407	Elect Music Techniques I	3
MUS 409	Elec Music Techniques II	2
NEUR 453	Cog Neuroscience of Vision	3 or 4
NPRE 201	Energy Systems	2 or 3
NPRE 247	Modeling Nuclear Energy System	3
NPRE 402	Nuclear Power Engineering	3 or 4
NPRE 412	Nuclear Power Econ & Fuel Mgmt	3 or 4
NPRE 421	Plasma and Fusion Science	3
NPRE 423	Plasma Laboratory	2
NPRE 429	Plasma Engineering	3
NPRE 431	Materials in Nuclear Engrg	3
NPRE 432	Nuclear Engrg Materials Lab	2
NPRE 435	Radiological Imaging	3
NPRE 441	Radiation Protection	4

NPRE 442	Padipactive Wests Management	3
NPRE 444	Radioactive Waste Management	2 or 3
NPRE 444 NPRE 446	Nuclear Analytical Methods Lab Radiation Interact w/Matter I	
NPRE 447	Radiation Interact w/Matter II	3
NPRE 448	Nuclear Syst Engrg & Design	
NPRE 451	NPRE Laboratory	4
NPRE 455	Neutron Diffusion & Transport	4
NPRE 457	Safety Anlys Nucl Reactor Syst	3 or 4
NPRE 457 NPRE 458		
NPRE 470	Design in NPRE	4
NPRE 475	Fuel Cells & Hydrogen Sources	3 or 4
PHYS 225	Wind Power Systems	
PHYS 325	Relativity & Math Applications Classical Mechanics I	2
PHYS 326	Classical Mechanics II	3
PHYS 401		
PHYS 401 PHYS 402	Classical Physics Lab	3 or 4
	Light	
PHYS 403 PHYS 406	Modern Experimental Physics	4 or 5
	Acoustical Physics of Music	2 2 7 4
PHYS 419	Space, Time, and Matter-ACP	3 or 4
PHYS 420	Space, Time, and Matter	2
PHYS 427	Thermal & Statistical Physics	4
PHYS 460	Condensed Matter Physics	2 - 1 4
PHYS 466	Atomic Scale Simulations	3 or 4
PHYS 470	Subatomic Physics	4
PHYS 485	Atomic Phys & Quantum Theory	3
PHYS 486	Quantum Physics I	4
PHYS 487	Quantum Physics II	4
PSYC 204	Intro to Brain and Cognition	3
SHS 200	General Phonetics	3
SHS 240	Intro Sound & Hearing Science	3
SHS 300	Anat & Physiol Spch Mechanism	4
SHS 301	General Speech Science	4
SHS 320	Development of Spoken Language Intro Audiol & Hear Disorders	3
SHS 450		4
SHS 470	Neural Bases Spch Lang	4
STAT 420	Methods of Applied Statistics	3 or 4
STAT 424	Analysis of Variance	3 or 4
STAT 428	Statistical Computing	3 or 4
STAT 429	Time Series Analysis	3 or 4
STAT 440	Statistical Data Management	3 or 4
SE 411	Reliability Engineering	3 or 4
SE 420	Digital Control Systems	4
SE 423	Mechatronics	3
SE 424	State Space Design for Control	3
TAM 211	Statics	3
TAM 212	Introductory Dynamics	3
TAM 251	Introductory Solid Mechanics	3
TAM 324	Behavior of Materials	4
TAM 335	Introductory Fluid Mechanics	4
TAM 412	Intermediate Dynamics	4
TAM 435	Intermediate Fluid Mechanics	4
TAM 445	Continuum Mechanics	4

TAM 451	Intermediate Solid Mechanics	4
ECE Courses to include		4
ECE 391	Illowing list of Advanced Core ECE electives: Computer Systems Engineering	
or CS 225	Data Structures	
ECE 310	Digital Signal Processing	
ECE 330	Power Ckts & Electromechanics	
ECE 342	Electronic Circuits	
ECE 342 ECE 350	Fields and Waves II	
	lentified below. At least one must be hardware labs	
Hardware Labs:	tertified below. At least one must be flatdware labs	
	Flackwaria Circuita Labarratam	1
ECE 343	Electronic Circuits Laboratory	1
ECE 391	Computer Systems Engineering	4
ECE 395	Advanced Digital Projects Lab	2 or 3
ECE 402	Electronic Music Synthesis	3
ECE 415	Biomedical Instrumentation Lab	2
ECE 420	Embedded DSP Laboratory	2
ECE 431	Electric Machinery	4
CS 436	Computer Networking Laboratory	3 or 4
ECE 437	Sensors and Instrumentation	3
ECE 438	Communication Networks	3 or 4
ECE 439	Wireless Networks	3 or 4
ECE 443	LEDs and Solar Cells	4
ECE 444	IC Device Theory & Fabrication	4
ECE 446	Principles of Experimental Research in Electrical Engineering	4
ECE 447	Active Microwave Ckt Design	3
ECE 451	Adv Microwave Measurements	3
ECE 453	Wireless Communication Systems	4
ECE 456	Global Nav Satellite Systems	4
ECE 460	Optical Imaging	4
ECE 463	Digital Communications Lab	2
ECE 466	Optical Communications Lab	1
ECE 468	Optical Remote Sensing	3
ECE 469	Power Electronics Laboratory	2
ECE 470	Introduction to Robotics	4
ECE 481	Nanotechnology	4
ECE 486	Control Systems	4
ECE 489	Robot Dynamics and Control	4
ECE 495	Photonic Device Laboratory	3
Software Labs:		
ECE 311	Digital Signal Processing Lab	1
ECE 314	Probability in Engineering Lab	1
ECE 365	Data Science and Engineering	3
ECE 411	Computer Organization & Design	4
Electives		
Code	Title	Hours
	ngineering Liberal Education course list, or additional courses from the campus General Education oral Sciences or Humanities and the Arts ⁷	6
Free electives. Additional	unrestricted course work, subject to certain exceptions as noted by the College, so that there are at	12
least 128 credit hours earn		100
Total Hours of Curriculum	to Granuate	128

- 1 External transfer students takeENG 300 instead.
- MATH 220may be substituted, with four of the five credit hours applying toward the degree.MATH 220is appropriate for students with no background in calculus.
- Freshmen takeECE 110for 3 credit hours. Lab-only version taken by transfer students (with special permission) is 1 credit hour.
- 4 STAT 410may be substituted.
- ⁵ ECE 496ANDECE 499may be substituted.
- Advanced Composition may be satisfied by completing ECE 445, or a course in either the general education or free elective categories which has the Advanced Composition designation.
- The Grainger College of Engineering approved liberal education course list can be foundhere (https://wiki.illinois.edu/wiki/display/ugadvise/Degree+Requirements/#DegreeRequirements-GeneralEducationElectives). Note that these credit hours could carry the required cultural studies designation required for campus general education requirements.
- The Grainger College of Engineering restrictions to free electives can be found here (https://wiki.illinois.edu/wiki/display/ugadvise/Degree +Requirements/#DegreeRequirements-FreeElectives).

EP Documentation

DMI Documentation

Attach Final Approval Notices ClassSenMinUIUC022020.pdf

Banner/Codebook Name

BS:Electrical Engineerng -UIUC

Program Code:

10KP0115BS

Degree Code

BS

Major Code

0115

Program Reviewer Comments

Deb Forgacs (dforgacs) (Thu, 01 Oct 2020 22:23:40 GMT):Rollback: requested.

Deb Forgacs (dforgacs) (Wed, 07 Oct 2020 17:05:28 GMT):Rollback: requested.

Brooke Newell (bsnewell) (Thu, 29 Oct 2020 16:37:48 GMT):Rollback: Rolling back proposal per request

Kathy Martensen (kmartens) (Wed, 10 Mar 2021 21:48:25 GMT):Rollback: Please add letters of support from the departments of ATMS, CPSC, and PSYC for adding their courses as choose-froms in the Tech Electives list. Thanks!

Candy Deaville (candyd) (Wed, 10 Mar 2021 21:52:01 GMT):Rollback: Please add letters of support from the departments of ATMS, CPSC, and PSYC for adding their courses as choose-froms in the Tech Electives list

Kathy Martensen (kmartens) (Mon, 22 Mar 2021 18:58:58 GMT): Administrative approval: No change to total hours required/doesn't restrict students' options.

Addition						
Revision CURRENT PR	ROGRAM		REVISED PR	OGRAM		
	and Professional Development			n and Professional Development		
Code ENG 100	Title Engineering Orientation ¹	Hours	Code 0 ENG 100	Title Engineering Orientation ¹	Hours	0
Total Hours			0 Total Hours			0
Course List	nal Mathematics and Science		Course List	nal Mathematics and Science		
	Title General Chemistry I	Hours		Title General Chemistry I	Hours	3
CHEM 103 MATH 221	General Chemistry Lab I Calculus I ²		1 CHEM 103 4 MATH 221	General Chemistry Lab I Calculus I ²		1
	Calculus II		3 MATH 231 4 MATH 241	Calculus II Calculus III		3 4
			MATH 257	Linear Algebra with Computational Applications Intro to Differential Eq		3 3
MATH 286 PHYS 211	Intro to Differential Eq Plus University Physics: Mechanics		4 PHYS 211	University Physics: Mechanics		4
PHYS 213	University Physics: Elec & Mag Univ Physics: Thermal Physics		4 PHYS 212 2 PHYS 213	University Physics: Elec & Mag Univ Physics: Thermal Physics		4
PHYS 214 Total Hours	Univ Physics: Quantum Physics	- 1	2 PHYS 214 31 Total Hours	Univ Physics: Quantum Physics		2 33
	Engineering Technical Core			Engineering Technical Core		
Course List Code	Title	Hours	Course List Code	Title	Hours	
ECE 110 ECE 120	Introduction to Electronics ³ Introduction to Computing		3 ECE 110 4 ECE 120	Introduction to Electronics ³ Introduction to Computing		4
ECE 220 ECE 210	Computer Systems & Programming Analog Signal Processing		4 ECE 220 4 ECE 210	Computer Systems & Programming Analog Signal Processing		4
	Probability with Engrg Applic ⁴ Fields and Waves I		3 ECE 313 3 ECE 329	Probability with Engrg Applic ⁴ Fields and Waves I		3
ECE 340 ECE 385	Semiconductor Electronics Digital Systems Laboratory		3 ECE 340 3 ECE 385	Semiconductor Electronics Digital Systems Laboratory		3
ECE 445 Total Hours	Senior Design Project Lab 5,6		4 ECE 445 31 Total Hours	Senior Design Project Lab 5/5		4 31
Technical I	Electives		Technical	Electives		
Course List Code	Title	Hours	Course List Code	Title	Hours	
	rses from list below:			rses from list below:		6
AE 202 AE 302	Aerospace Flight Mechanics Aerospace Flight Mechanics II		3 AE 202 3 AE 302	Aerospace Flight Mechanics Aerospace Flight Mechanics II		3
AE 311 AE 312	Incompressible Flow Compressible Flow		3 AE 311 3 AE 312	Incompressible Flow Compressible Flow		3
AE 321 AE 352	Mechs of Aerospace Structures Aerospace Dynamical Systems		3 AE 321 3 AE 352	Mechs of Aerospace Structures Aerospace Dynamical Systems		3
AE 353 AE 402	Aerospace Control Systems Orbital Mechanics	3 or 4	3 AE 353 AE 402	Aerospace Control Systems Orbital Mechanics	3 or 4	3
AE 403 AE 410	Spacecraft Attitude Control Computational Aerodynamics	3 or 4 3 or 4	AE 403 AE 410	Spacecraft Attitude Control Computational Aerodynamics	3 or 4 3 or 4	
AE 412 AE 416	Viscous Flow & Heat Transfer Applied Aerodynamics	3 or 4	4 AE 412 AE 416	Viscous Flow & Heat Transfer Applied Aerodynamics	3 or 4	4
AE 419 AE 420	Aircraft Flight Mechanics Finite Element Analysis	3 or 4	AE 419 AE 420	Aircraft Flight Mechanics Finite Element Analysis	3 or 4 3 or 4	
AE 427 AE 428	Mechanics of Polymers Mechanics of Composites		3 AE 427 3 AE 428	Mechanics of Polymers Mechanics of Composites		3
AE 433 AE 434	Aerospace Propulsion Rocket Propulsion	3 or 4 3 or 4	AE 433 AE 434	Aerospace Propulsion Rocket Propulsion	3 or 4 3 or 4	-
AE 435 AE 451	Electric Propulsion Aeroelasticity	3 or 4 3 or 4	AE 435 AE 451	Electric Propulsion Aeroelasticity	3 or 4 3 or 4	
AE 460	Aerodynamics & Propulsion Lab ing All 300 and 400 level courses except AB		2 AE 460	Aerodynamics & Propulsion Lab		2 semin
	Introduction to Astrophysics Computing in Astronomy		3 ASTR 210 3 ASTR 310	Introduction to Astrophysics Computing in Astronomy	cpc 30	3
ASTR 330 ASTR 350	Extraterrestrial Life The Big Bang, Black Holes, and the End of the L		3 ASTR 330 3 ASTR 350	Extraterrestrial Life The Big Bang, Black Holes, and the End of the	u	3
ASTR 404 ASTR 405	The Big Bang, Black Holes, and the End of the U Stellar Astrophysics Planetary Systems		3 ASTR 404 3 ASTR 405	The Big Bang, Black Hotes, and the End of the Stellar Astrophysics Planetary Systems		3
ASTR 406	Planetary Systems Galaxies and the Universe Astronomical Techniques		3 ASTR 406	Galaxies and the Universe		3
ASTR 414 ASTR 450	Astronomical Techniques Astrochemistry		4 ASTR 414 4 ASTR 450	Astronomical Techniques Astrochemistry		4
	Atmospheric Thermodynamics		3 ATMS 301	General Physical Meteorology Atmospheric Thermodynamics		3
ATMS 302 ATMS 303	Atmospheric Dynamics I Synoptic-Dynamic Wea Analysis		3 ATMS 302 4 ATMS 303	Atmospheric Dynamics I Synoptic-Dynamic Wea Analysis		3 4
ATMS 304 ATMS 305	Radiative Transfer-Remote Sens Computing and Data Analysis		3 ATMS 304 3 ATMS 305	Radiative Transfer-Remote Sens Computing and Data Analysis		3
ATMS 405	Risk Analysis in Earth Science Boundary Layer Processes		ATMS 404 4 ATMS 405	Risk Analysis in Earth Science Boundary Layer Processes	3 or 4	4
ATMS 406 ATMS 410	Tropical Meteorology Radar Remote Sensing		4 ATMS 406 4 ATMS 410	Tropical Meteorology Radar Remote Sensing		4
ATMS 411 ATMS 420	Satellite Remote Sensing Atmospheric Chemistry		4 ATMS 411 4 ATMS 420	Satellite Remote Sensing Atmospheric Chemistry		4
ATMS 421 ATMS 425	Earth Systems Modeling Air Quality Modeling		4 ATMS 421 4 ATMS 425	Earth Systems Modeling Air Quality Modeling		4
ATMS 447 ATMS 449	Climate Change Assessment Biogeochemical Cycles		3 ATMS 447 4 ATMS 449	Climate Change Assessment Biogeochemical Cycles		3
	Gene Expression & Regulation Physical Chemistry Principles		3 BIOC 406 4 BIOC 440	Gene Expression & Regulation Physical Chemistry Principles		3
BIOC 446	Physical Biochemistry		4 BIOC 440 3 BIOC 446 4 BIOC 455	Physical Chemistry Principles Physical Biochemistry Technos Biochem & Biotech		3
BIOE 201	Technqs Biochem & Biotech Conservation Principles Bioeng		3 BIOE 201	Technqs Biochem & Biotech Conservation Principles Bioeng Cell & Tissue Engineering Lab		3
BIOE 302	Cell & Tissue Engineering Lab Modeling Human Physiology		2 BIOE 202 3 BIOE 302	Modeling Human Physiology		3
	Biomedical Instrumentation Biomedical Instrumentation Lab		3 BIOE 414 2 BIOE 415			2
BIOE 467	Cellular Biomechanics Biophotonics		4 BIOE 461 3 BIOE 467	Cellular Biomechanics Biophotonics		4
BIOE 480		3 or 4	3 BIOE 476 BIOE 480	Tissue Engineering Magnetic Resonance Imaging	3 or 4	3
Biophysics (BI	IOP): All 400 level courses except seminars and s Principles of CHE		cou Biophysics (B			urses,
CHBE 321	Thermodynamics Momentum and Heat Transfer		4 CHBE 321 4 CHBE 421	Thermodynamics Momentum and Heat Transfer		4
CHBE 422	Mass Transfer Operations Chemical Reaction Engineering		4 CHBE 422 3 CHBE 424	Mass Transfer Operations		4
CHBE 430	Unit Operations Laboratory Process Design		4 CHBE 430			4
	Process Design Process Control and Dynamics Transport Phenomena		3 CHBE 440 3 CHBE 451			3
CHBE 452	Chemical Kinetics & Catalysis		3 CHBE 451 3 CHBE 452 CHBE 453	Chemical Kinetics & Catalysis	2 or 3	3
CHBE 456	Polymer Science & Engineering Microelectronics Processing			Polymer Science & Engineering Microelectronics Processing	200	3
CHIEF 457			3 CHBE 457 CHBE 471 CHBE 472	Biochemical Engineering	3 or 4	3
	Biochemical Engineering	3 or 4		Biomolecular Engineering	3 or 4 3 or 4 3 or 4	
CHBE 472 CHBE 473	Biochemical Engineering Techniques in Biomolecular Eng Biomolecular Engineering	3 or 4 3 or 4	CHBE 473		3 UI 4	
CHBE 472 CHBE 473 CHBE 474 CHEM 104	Biochemical Engineering Techniques in Biomolecular Eng Biomolecular Engineering Metabolic Engineering General Chemistry II	3 or 4 3 or 4 3 or 4	CHBE 473 CHBE 474 3 CHEM 104	General Chemistry II		3
CHBE 472 CHBE 473 CHBE 474 CHEM 104 CHEM 105 Chemistry (Ch	Biochemical Engineering Techniques in Biomolecular Eng Biomolecular Engineering Metabolic Engineering General Chemistry II General Chemistry Lab III HEMI; All 200, 300 and 400 level except 397, 497,	3 or 4 3 or 4 3 or 4 and 499. Exce	CHBE 473 CHBE 474 3 CHEM 104 1 CHEM 105 epti Chemistry (CI	General Chemistry II General Chemistry Lab II HEM): All 200, 300 and 400 level except 397, 497	, and 499. Exception	1 tions al
CHBE 472 CHBE 473 CHBE 474 CHEM 104 CHEM 105 Chemistry (CHCEE 310 CEE 330	Biochemical Engineering Techniques in Biomolecular Eng Biomolecular Engineering Metabolic Engineering General Chemistry II General Chemistry II General Chemistry Lob II Table Ji Al 200, 300 and 400 level except 397, 497, Transportation Engineering Environmental Engineering	3 or 4 3 or 4 3 or 4 and 499. Exce	CHBE 473 CHBE 474 3 CHEM 104 1 CHEM 105 epti Chemistry (CI 3 CEE 310 3 CEE 330	General Chemistry II General Chemistry Lab II HEM): All 200, 300 and 400 level except 397, 497 Transportation Engineering Environmental Engineering		1
CHBE 472 <u>CHBE 473</u> <u>CHBE 474</u> CHEM 104 CHEM 105 Chemistry (CHCEE 310) <u>CEE 330</u> CEE 408 CEE 410	Blochemical Engineering Techniques in Biomolecular Eng Biomolecular Engineering Metabolic Engineering General Chemistry III General Chemistry III General Chemistry II Tensportation Engineering Tensportation Engineering Railroad Transportation Engineering Railroad Transportation Engineering Railroad Transportation Engineering Railroad Transportation Engine	3 or 4 3 or 4 3 or 4 and 499. Exce 3 or 4 3 or 4	CHBE 473 CHBE 474 CHEM 104 CHEM 105 CHEM 105 CEE 310 CEE 330 CEE 408 CEE 410	General Chemistry II General Chemistry Lab II HEM): All 200, 300 and 400 level except 397, 497 Transportation Engineering Environmental Engineering Railroad Transportation Engrg Railway Signaling & Control	3 or 4 3 or 4	1 tions al
CHBE 472 CHBE 473 CHBE 474 CHEM 104 CHEM 105 Chemistry (CHCEE 310 CEE 330 CEE 408 CEE 410 CEE 416 CEE 430	Blochemical Engineering Techniques in Blomelecular Eng Blomolecular Engineering Metabolic Engineering General Chemistry is General Chem	3 or 4 3 or 4 3 or 4 and 499. Exce 3 or 4 3 or 4 3 or 4	CHBE 473 CHBE 474 CHBE 474 CHEM 104 CHEM 105 CHE	General Chemistry II General Chemistry Lab II HEBMY, AII 200, 300 and 400 level except 397, 497 Transportation Engineering Environmental Engineering Railroad Transportation Engra Railway Signaling & Control Traffic Capacity Analysis Ecological Quality Engineering	3 or 4	1 tions a 3 3
CHBE 472 CHBE 473 CHBE 474 CHEM 104 CHEM 105 Chemistry (CHCEE 310 CEE 330 CEE 408 CEE 410 CEE 410 CEE 430 CEE 430 CEE 447	Blochemical Engineering Techniques in Blomelecular Eng Blomolecular Engineering Metabolic Engineering General Chemistry II General Chemistry Lab II Fellerin 200, 300 and 400 level except 397, 497, Transportation Engineering Environmental Engineering Environmental Engineering Railward Simpsortion Engra Railward Simpsortion Engineering Tanffic Capacity Analysis Ecological Quality Engineering Atmospheric Chemistry	3 or 4 3 or 4 3 or 4 and 499. Exce 3 or 4 3 or 4 3 or 4	CHBE 473 CHBE 474 3 CHEM 104 3 CHEM 105 epti Chemistry (CI 3 CEE 310 3 CEE 330 CEE 408 CEE 410 CEE 416 2 CEE 430 4 CEE 447	General Chemistry II General Chemistry Lab II HEMI): All 200, 300 and 400 level except 397, 497 Transportation Engineering Railroad Transportation Engrq Railroad Transportation Engrq Railroad Stansing & Control Traffic Capacity Analysis	3 or 4 3 or 4	1 tions a 3 3
CHBE 472 CHBE 473 CHBE 474 CHEM 104 CHEM 105 Chemistry (CHCEE 310 CEE 300 CEE 408 CEE 410 CEE 410 CEE 430 CEE 447 CEE 491 CS 101	Blochemical Engineering Techniques in Biomelecular Eng Biomolecular Engineering Medibolic Engineering General Chemistry II General Chemistry II Transportation Engineering General Chemistry II Faller, MI COD, 300 and 400 level except 397, 497, Transportation Engineering Environmental Engineering Almospheric Chemistry Decision and Risk Andrayiss http Computing: Engra & Sci (By Approval)	3 or 4 3 or 4 3 or 4 and 499. Exce 3 or 4 3 or 4 3 or 4	CHBE 473 CHEM 104 CHEM 105 CHE	General Chemisty II. General Chemisty Lab II. HEMP, AI 200, 300 and 400 level except 397, 497. Transportation Engineering Environmental Engineering Railway Signalini & Contator Traffic Capacity Analysis Ecological Qualif	3 or 4 3 or 4 3 or 4	1 tions a 3 3 3 4 4 4 3 3 3
CHBE 472 CHBE 472 CHBE 474 CHEM 104 CHEM 105 Chemistry (ChCEF 310 CEE 330 CEE 416 CEE 416 CEE 416 CEE 420 CEE 416 CEE 420 CEE 416 CEE 417	Blochemical Engineering Techniques in Biomelecular Eng Biomolecular Engineering Metabolic Engineering General Chemistry II General Chemistry II General Chemistry II Transportation Engineering Entition (100, 300 and 400 level except 397, 497, Transportation Engineering Environmental Engineering Almospheric Ohemistry Decision and Risk Analysis Into Computing, Engra & Sci (By Approval) Discrebe Structures	3 or 4 3 or 4 3 or 4 and 499. Exce 3 or 4 3 or 4 3 or 4	CHBE 473 CHEM 104 CHEM 105 CHE	General Chemisty II bit Coneral Chemisty Lab II el General Chemistry Lab II el General Chemistry Chemistr	3 or 4 3 or 4 3 or 4	1 tions a 3 3 3 4
CHBE 472 CHBE 473 CHBE 474 CHEM 104 CHEM 105 CHEM 105 CEE 330 CEE 430 CEE 410 CEE 416 CEE 491 CS 101 CS 173 CS 2525 CS 2242	Blochemical Engineering Techniques in Blomelecular Engineering Blomolecular Engineering Metabolic Engineering General Chemistry II General Chemistry Lab II Felbir Jul 200, 300 and 400 level except 397, 497, Transportation Engineering Environmental Engineering Environmental Engineering Asilwara Signalina & Control Traffic Capacity Analysis Ecological Quality Engineering Atmospheric Chemistry Decision and Risk Analysis Into Computing: Engineering Atmospheric Chemistry Into Computing: Engineering Into Co	3 or 4 3 or 4 3 or 4 and 499. Exce 3 or 4 3 or 4 3 or 4	CHBE 473 3 CHEM 104 1 CHEM 105 epti Chemistry (Cl 3 CEE 330 CEE 408 CEE 410 CEE 410 CEE 446 2 CEE 430 4 CEE 447 CEE 441 3 CS 101 3 CS 173	General Chemistry II. General Chemistry Lab II. HEMP), All 200, 300 and 400 level except 397, 497. Transportation Engineering Environmental Engineering Environmental Engineering Railway Stransino & Control Traffic Capacity Analysis Ecological Quality Engineering Admospheric Chemistry Decision and Risk Analysis Into Computing, Engineering Into Computi	3 or 4 3 or 4 3 or 4	1 tions : 3 3 3 4 4 3 3 3

CS 410		3 or 4	CS 410	Text Information Systems	3 or 4	
CS 411 CS 412		3 or 4 3 or 4	CS 411 CS 412	Database Systems Introduction to Data Mining	3 or 4 3 or 4	
CS 413	Intro to Combinatorics	3 or 4	CS 413	Intro to Combinatorics	3 or 4	
CS 414 CS 418		3 or 4 3 or 4	CS 414 CS 418	Multimedia Systems	3 or 4 3 or 4	
CS 419		3 or 4	CS 419		3 or 4	
CS 420		3 or 4	CS 420	Parallel Progrmg: Sci & Engrg	3 or 4	
CS 421 CS 422		3 or 4 3 or 4	CS 421 CS 422	Programming Languages & Compilers Programming Language Design	3 or 4	
CS 423	Operating Systems Design	3 or 4	CS 423	Operating Systems Design	3 or 4	
CS 424 CS 425		3 or 4 3 or 4	CS 424 CS 425	Real-Time Systems Distributed Systems	3 or 4	
CS 426	Compiler Construction	3 or 4	CS 426	Compiler Construction	3 or 4	
CS 427 CS 428		3 or 4 3 or 4	CS 427 CS 428		3 or 4 3 or 4	
CS 429	Software Engineering II, ACP		3 CS 429	Software Engineering II, ACP		3
CS 431 CS 433		3 or 4 3 or 4	CS 431 CS 433	Embedded Systems Computer System Organization	3 or 4 3 or 4	
CS 436		3 or 4	CS 436		3 or 4	
CS 438 CS 439		3 or 4 3 or 4	CS 438 CS 439		3 or 4 3 or 4	
CS 440		3 or 4	CS 449 CS 440	Wireless Networks Artificial Intelligence	3 or 4	
CS 445	Computational Photography	3 or 4	CS 445	Computational Photography	3 or 4	
CS 446 CS 447		3 or 4 3 or 4	CS 446 CS 447		3 or 4 3 or 4	
CS 450	Numerical Analysis	3 or 4	CS 450	Numerical Analysis	3 or 4	
CS 460 CS 461	Security Laboratory Computer Security I	3 or 4	CS 460 4 CS 461	Security Laboratory Computer Security I	3 or 4	4
CS 463	Computer Security II	3 or 4	CS 463	Computer Security II	3 or 4	
CS 465 CS 466		3 or 4 3 or 4	CS 465 CS 466		3 or 4 3 or 4	
CS 467	Social Visualization	3 or 4	CS 467	Social Visualization	3 or 4	
CS 473 CS 475	Algorithms Formal Models of Computation	3 or 4	4 CS 473 CS 475	Algorithms Formal Models of Computation	3 or 4	4
CS 476		3 or 4	CS 476		3 or 4	
CS 477		3 or 4	CS 477		3 or 4	
CS 481 CS 484	Advanced Topics in Stochastic Processes & App Parallel Programming	3 or 4	CS 481 CS 484	Advanced Topics in Stochastic Processes & App Parallel Programming	3 or 4	
CS 398	Special Topics (As Approved)	1 to 4	CS 398	Special Topics (As Approved)	1 to 4	
CS 498 ECE 297	Special Topics (As Approved) Individual Study	1 to 4	CS 498 1 ECE 297	Special Topics (As Approved) Individual Study	1 to 4	1
ECE 304	Photonic Devices		3 ECE 304	Photonic Devices		3
ECE 307 ECE 310	Techniques for Engrq Decisions Digital Signal Processing		3 ECE 307 3 ECE 310	Techniques for Engrg Decisions Digital Signal Processing		3
ECE 311	Digital Signal Processing Lab		1 ECE 311	Digital Signal Processing Lab		1
ECE 314 ECE 329	Probability in Engineering Lab Fields and Waves I		1 ECE 314 3 ECE 329	Probability in Engineering Lab Fields and Waves I		1 3
ECE 330	Power Ckts & Electromechanics		3 ECE 330	Power Ckts & Electromechanics		3
ECE 333 ECE 340	Green Electric Energy Semiconductor Electronics		3 ECE 333 3 ECE 340	Green Electric Energy Semiconductor Electronics		3
ECE 340 ECE 342	Semiconductor Electronics Electronic Circuits		3 ECE 342	Semiconductor Electronics Electronic Circuits		3
ECE 343	Electronic Circuits Laboratory		1 ECE 343	Electronic Circuits Laboratory		1
ECE 350 ECE 365	Fields and Waves II Data Science and Engineering		3 ECE 350 3 ECE 365	Fields and Waves II Data Science and Engineering		3
ECE 374	Introduction to Algorithms & Models of Computati		4 ECE 374	Introduction to Algorithms & Models of Computat		4
ECE 380 ECE 391	Biomedical Imaging Computer Systems Engineering		3 ECE 380 4 ECE 391	Biomedical Imaging Computer Systems Engineering		3
ECE 395	Advanced Digital Projects Lab	2 or 3	ECE 395	Advanced Digital Projects Lab	2 or 3	
ECE 396 ECE 397		1 to 4 0 to 4	ECE 396 ECE 397	Honors Project Individual Study in ECE	1 to 4 0 to 4	
ECE 402	Electronic Music Synthesis		3 ECE 402	Electronic Music Synthesis		3
ECE 403 ECE 408	Audio Engineering Applied Parallel Programming		3 ECE 403 4 ECE 408	Audio Engineering Applied Parallel Programming		3
ECE 411	Computer Organization & Design		4 ECE 408 4 ECE 411	Computer Organization & Design		4
ECE 412	Microcomputer Laboratory		3 ECE 412	Microcomputer Laboratory		3
ECE 414 ECE 415	Biomedical Instrumentation Biomedical Instrumentation Lab		3 ECE 414 2 ECE 415	Biomedical Instrumentation Biomedical Instrumentation Lab		3
ECE 416	Biosensors		3 ECE 416	Biosensors		3
ECE 417 ECE 418	Multimedia Signal Processing Image & Video Processing		4 ECE 417 4 ECE 418	Multimedia Signal Processing Image & Video Processing		4
ECE 419		3 or 4	ECE 419		3 or 4	*
ECE 420 ECE 422	Embedded DSP Laboratory		2 ECE 420 4 ECE 422	Embedded DSP Laboratory		2
ECE 422 ECE 424	Computer Security II	3 or 4	ECE 424	Computer Security II	3 or 4	4
ECE 425	Intro to VLSI System Design		3 ECE 425	Intro to VLSI System Design		3
ECE 428 ECE 431	Distributed Systems Electric Machinery	3 or 4	ECE 428 4 ECE 431	Distributed Systems Electric Machinery	3 or 4	4
ECE 432	Advanced Electric Machinery		3 ECE 432	Advanced Electric Machinery		3
ECE 435	Computer Networking Laboratory Sensors and Instrumentation	3 or 4	ECE 435 3 ECE 437	Computer Networking Laboratory Sensors and Instrumentation	3 or 4	3
ECE 437 ECE 438		3 or 4	3 ECE 437 ECE 438	Sensors and Instrumentation Communication Networks	3 or 4	3
ECE 439	Wireless Networks	3 or 4	ECE 439	Wireless Networks	3 or 4	
ECE 441 ECE 443	Physics & Modeling Semicond Dev LEDs and Solar Cells		3 ECE 441 4 ECE 443	Physics & Modeling Semicond Dev LEDs and Solar Cells		3
ECE 444	IC Device Theory & Fabrication		4 ECE 444	IC Device Theory & Fabrication		4
ECE 445 ECE 446	Senior Design Project Lab Principles of Experimental Research in Electrical		4 ECE 445 4 ECE 446	Senior Design Project Lab Principles of Experimental Research in Electrical		4
ECE 447	Principles of Experimental Research in Electrical Active Microwave Ckt Design		3 ECE 447	Principles of Experimental Research in Electrical Active Microwave Ckt Design		3
ECE 448	Artificial Intelligence	3 or 4	ECE 448	Artificial Intelligence	3 or 4	
ECE 451 ECE 452	Adv Microwave Measurements Electromagnetic Fields		3 ECE 451 3 ECE 452	Adv Microwave Measurements Electromagnetic Fields		3
ECE 453	Wireless Communication Systems		4 ECE 453	Wireless Communication Systems		4
ECE 454 ECE 455	Antennas Optical Electronics	3 or 4	3 ECE 454 ECE 455	Antennas Ontical Electronics	3 or 4	3
ECE 456	Global Nav Satellite Systems		4 ECE 456	Global Nav Satellite Systems	a of 4	4
ECE 457	Microwave Devices & Circuits		3 ECE 457	Microwave Devices & Circuits		3
ECE 458 ECE 459	Applic of Radio Wave Propag Communications Systems		3 ECE 458 3 ECE 459	Applic of Radio Wave Propag Communications Systems		3
ECE 460	Optical Imaging		4 ECE 460	Optical Imaging		4
ECE 461 ECE 462	Digital Communications Logic Synthesis		3 ECE 461 3 ECE 462	Digital Communications Logic Synthesis		3
ECE 463	Logic Synthesis Digital Communications Lab		2 ECE 463	Logic Synthesis Digital Communications Lab		2
ECE 464 ECE 465	Power Electronics		3 ECE 464 3 ECE 465	Power Electronics		3
ECE 466	Optical Communications Systems Optical Communications Lab		1 ECE 466	Optical Communications Systems Optical Communications Lab		3
ECE 467	Biophotonics		3 ECE 467	Biophotonics		3
ECE 468 ECE 469	Optical Remote Sensing Power Electronics Laboratory		3 ECE 468 2 ECE 469	Optical Remote Sensing Power Electronics Laboratory		3
ECE 470	Introduction to Robotics		4 ECE 470	Introduction to Robotics		4
ECE 472 ECE 473	Biomedical Ultrasound Imaging Fund of Engra Acquistics	3 or 4	3 ECE 472 ECE 473	Biomedical Ultrasound Imaging	3 or 4	3
ECE 473 ECE 476	Power System Analysis		ECE 473 3 ECE 476	Power System Analysis		3
ECE 478		3 or 4 3 or 4	ECE 478	Formal Software Development Methods	3 or 4	
			ECE 480	Magnetic Resonance Imaging Nanotechnology	3 or 4	4
ECE 480 ECE 481			4 ECE 481			
ECE 480 ECE 481 ECE 482	Magnetic Resonance Imaging Nanotechnology Digital IC Design		3 ECE 482	Digital IC Design		3
ECE 480 ECE 481 ECE 482 ECE 483	Magnetic Resonance Imaging Nanotechnology Digital IC Design Analog IC Design		3 ECE 482 3 ECE 483	Digital IC Design Analog IC Design		3
ECE 480 ECE 481 ECE 482 ECE 483 ECE 485 ECE 486	Magnetic Resonance Imaging Nanotechnology Digital IC Design Analog IC Design MEMS Devices & Systems Control Systems		3 ECE 482 3 ECE 483 3 ECE 485 4 ECE 486	Digital IC Design Analog IC Design MEMS Devices & Systems Control Systems		3 3 4
ECE 480 ECE 481 ECE 482 ECE 483 ECE 485 ECE 486 ECE 487	Magnetic Resonance Imaging Nanotechnology Digital IC Design Analog IC Design MEMS Devices & Systems Control Systems Into Quantum Electr for EEs		3 ECE 482 3 ECE 483 3 ECE 485 4 ECE 486 3 ECE 487	Digital IC Design Analog IC Design MEMS Devices & Systems Control Systems Intro Quantum Electr for EEs		3 3 3 4 3
ECE 480 ECE 481 ECE 482 ECE 483 ECE 485 ECE 486 ECE 487 ECE 488	Magnetic Resonance Imaging Nanotechnology Digital IC Design Analog IC Design MEMS Devices & Systems Control Systems		3 ECE 482 3 ECE 483 3 ECE 485 4 ECE 486	Digital IC Design Analog IC Design MEMS Devices & Systems Control Systems		3 3 4
ECE 480 ECE 481 ECE 482 ECE 483 ECE 485 ECE 486 ECE 487 ECE 488 ECE 489 ECE 490	Magnetic Resonance Imaging Nanotechnology Digital IC Design Analog IC Design Analog IC Design MEMS Devices & Systems Control Systems Into Quantum Electr for EEs Compound Semicond & Devices Robot Dynamics and Control Introduction to Optimization	3 or 4	3 ECE 482 3 ECE 483 3 ECE 485 4 ECE 486 3 ECE 487 3 ECE 488 4 ECE 489 ECE 490	Digital IC Design Analog IC Design MEMS Devices & Systems Control Systems Intro Quantum Electr for EEs Compound Semicond & Devices Robot Dynamics and Control Introduction to Optimization	3 or 4	3 3 3 4 3
ECE 480 ECE 481 ECE 482 ECE 483 ECE 485 ECE 486 ECE 487 ECE 488 ECE 489 ECE 490 ECE 491	Magnetic Resonance Imaging Nanodechendory Ogisti (C. Design Analog (C. Design MEMS Devices & Systems Control Systems Into Quantum Electri for Els Compound Semicons & Devices Rocked Dynamics and Control Introduction to Optimization Namerical Analysis	3 or 4 3 or 4	3 ECE 482 3 ECE 483 3 ECE 485 4 ECE 486 3 ECE 487 3 ECE 488 4 ECE 489 ECE 490 ECE 491	Digital IC Design Analog IC Design MEMS Devices & Systems Control Systems Rect for EEs Compound Semicond & Devices Rockd Dynamics and Control Introduction to Optimization Numerical Analysis	3 or 4	3 3 3 4 3
ECE 480 ECE 481 ECE 482 ECE 483 ECE 485 ECE 486 ECE 487 ECE 488 ECE 489 ECE 490 ECE 491 ECE 492 ECE 493	Magnetic Resonance Imaging Nanotechnology Digital IC Design Analog IC Design MEMS Devices & Systems Control Systems Histo Quantitum Electri for EEs Compound Semicrost & Devices Robot Dynamics and Control Manufaction Analog	3 or 4 3 or 4 3 or 4 3 or 4	3 ECE 482 3 ECE 483 3 ECE 485 4 ECE 486 3 ECE 487 3 ECE 488 4 ECE 489 ECE 490 ECE 491 ECE 492 ECE 493	Digital IC Design Analog IC Design MEMS Devices & Systems Control Systems Entrol Carella Fleet for EEs Compound Semicond & Devices Robot Dynamics and Control Introduction to Optimization Numerical Analysis Parallel Programs, 26 is Engra Advanced Engineering Math		3 3 3 4 3 4
ECE 480 ECE 481 ECE 482 ECE 483 ECE 485 ECE 486 ECE 487 ECE 488 ECE 489 ECE 491 ECE 491 ECE 492 ECE 493 ECE 495	Magnetic Reconance Imacing Nanodechinology Digital IC Deslign Analog IC Deslign MEMIS Devices & Systems Control Systems Hoto Quantum Ellect for EEs Compound Semicros & Evelices Robot Dynamics and Control Introduction to Quintization Numerical Analysis Parallel Procump Sid & Engrip Advanced Engineering Matth	3 or 4 3 or 4 3 or 4 3 or 4	3 ECE 482 3 ECE 483 3 ECE 485 4 ECE 486 3 ECE 487 3 ECE 488 4 ECE 489 ECE 490 ECE 491 ECE 493 3 ECE 493 3 ECE 495	Digital IC Design Analog IC Design MEMS Devices & Systems Control Systems Intro Quantum Elect for EEs Compound Semicon & Bevices Robot Dynamics and Control Introduction to Quinitation Numerical Analysis Parallel Program, Soi & Engra Advanced Engineering Math Phototol Device Laboratory	3 or 4 3 or 4	3 3 4 3 3 4
ECE 480 ECE 481 ECE 482 ECE 483 ECE 485 ECE 486 ECE 487 ECE 488 ECE 489 ECE 490 ECE 491 ECE 492 ECE 493	Magnetic Resonance Imaging Nanotechnology Digital IC Design Analog IC Design MEMS Devices & Systems Control Systems Histo Quantitum Electri for EEs Compound Semicrost & Devices Robot Dynamics and Control Manufaction Analog	3 or 4 3 or 4 3 or 4 3 or 4	3 ECE 482 3 ECE 483 3 ECE 485 4 ECE 486 3 ECE 487 3 ECE 488 4 ECE 489 ECE 490 ECE 491 ECE 492 ECE 493	Digital IC Design Analog IC Design MEMS Devices & Systems Control Systems Entrol Carella Fleet for EEs Compound Semicond & Devices Robot Dynamics and Control Introduction to Optimization Numerical Analysis Parallel Programs, 26 is Engra Advanced Engineering Math	3 or 4 3 or 4	3 3 3 4 3 4
ECE 480 ECE 481 ECE 482 ECE 483 ECE 485 ECE 486 ECE 487 ECE 489 ECE 490 ECE 491 ECE 492 ECE 493 ECE 495 ECE 499 ECE 499 ECE 499	Magnetic Resonance Imaging Nanotechnology Digital IC Design Analog IC Design MEMS Devices & Systems Control Systems Harbo Species & Systems Control Systems Harbo Countrol Electrol Compound Semicros & Bevices Robo Opmanics and Custrol Harbouction to Colorial Production to Control Production Theyest Semior Reseasch Project Semior Reseasch Project Semior Reseasch project Semior Thesis	3 or 4 3 or 4 3 or 4 3 or 4	3 ECE 482 3 ECE 483 3 ECE 485 4 ECE 486 3 ECE 487 3 ECE 488 4 ECE 489 ECE 490 ECE 491 ECE 492 ECE 492 ECE 493 3 ECE 495 2 ECE 496 2 ECE 499 ECE 398	Digital IC Design Analog IC Design Analog IC Design ARGIS Devices & Systems Control Systems Intro Coantrol Est Intro Coantrol Est Compound Semicord & Bevices Robot Dynamics and Control Introduction to Colomization Numerical Analysis Analoguia Analoguia Analoguia Ananocal Engineering Math Photonic Device Laboratory Semior Research Project Semior Research in ECE (As approved)	3 or 4 3 or 4 3 or 4	3 3 4 3 3 4
ECE 480 ECE 481 ECE 482 ECE 483 ECE 485 ECE 486 ECE 487 ECE 489 ECE 490 ECE 491 ECE 492 ECE 493 ECE 499	Magnetic Reconance Imaging Nanodechinology Digital IC Design Analog IC Design MEMIS Devices & Systems Control Systems Into Counted Systems Into Counter Systems Into Counter Systems Robot Dynamics and Control Introduction to Colimization Numerical Analysis Parallal Procursor Sol & Engra Advanced Engineering Math Protoric Device Laboratory Senior Research Project Senior Thesis Special Topics in ECE (As approved)	3 or 4 3 or 4 3 or 4 3 or 4	3 ECE 482 3 ECE 483 4 ECE 486 4 ECE 486 3 ECE 487 5 ECE 489 ECE 490 ECE 491 ECE 492 ECE 492 ECE 492 ECE 492 ECE 493 ECE 495 2 ECE 499 ECE 499 ECE 499 ECE 499 ECE 498	Digital IC Design Analog IC Design MEMS Devices & Systems Control Systems Intro Quantum Electr for EEs Compound Semicon & Devices Robot Dynamics and Control Introduction to Deprimization Numerical Analysis Panalel Program, Sol & Engra Advanced Engineering Math Photonic Device Laboratory Senior Research Project Senior Thesis Special Topics in ECE (As approved)	3 or 4 3 or 4 3 or 4 0 to 4 0 to 4	3 3 4 3 3 4
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ECE 480 ECE 482 ECE 483 ECE 486 ECE 486 ECE 487 ECE 488 ECE 489 ECE 491 ECE 493 ECE 493 ECE 495 ECE 496 ECE 495 ECE 496 ECE 497 ECE 497 ECE 497 ECE 498 ECE 49	Magnetic Resonance Imaging Nanotechnology Digital 10 Design Analog 10 Design Analog 10 Design MEMS Devices & Systems Control Systems Hoto Quantum Electr for EEs Compount Semonds & Devices Robot Dynamics and Control Introduction to Delimization Numerical Analosis Parallel Prosemps Sel & Estra Parallel Pros	3 or 4 3 or 4 3 or 4 3 or 4 0 to 4 0 to 4	3 ECE 482 3 ECE 483 3 ECE 485 4 ECE 486 4 ECE 486 3 ECE 487 3 ECE 488 4 ECE 490 ECE 491 ECE 492 ECE 493 3 ECE 495 2 ECE 496 2 ECE 499 ECE 398 ECE 498 ECE 498	Digital IC Design Analog IC Design MEMS Devices & Systems Control Systems Intro Country and Provided & Systems Control Systems Intro Country and Extending Systems Robot Dynamics and Control Introduction to Control Introduction Introduct	3 or 4 3 or 4 3 or 4 0 to 4 0 to 4	3 3 3 4 3 3 4 4 3 3 2 2 2
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ME 471 ME 472	Finite Element Analysis Introduction to Tribology	3 or 4 3 or 4		ME 471 ME 472	Finite Element Analysis Introduction to Tribology	3 or 4 3 or 4	
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NPRE 201	Energy Systems	2 or 3		NPRE 201	Energy Systems	2 or 3	
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NPRE 412 NPRE 421	Nuclear Power Econ & Fuel Mgmt Plasma and Fusion Science	3 or 4		NPRE 412 NPRE 421	Nuclear Power Econ & Fuel Mgmt Plasma and Fusion Science	3 or 4	3
NPRE 423	Plasma Laboratory		2	NPRE 423	Plasma Laboratory		2
NPRE 429 NPRE 431	Plasma Engineering Materials in Nuclear Engrg			NPRE 429 NPRE 431	Plasma Engineering Materials in Nuclear Engrg		3
NPRE 432	Nuclear Engrg Materials Lab		2	NPRE 432	Nuclear Engrg Materials Lab		2
NPRE 435 NPRE 441	Radiological Imaging Radiation Protection		4	NPRE 435 NPRE 441	Radiological Imaging Radiation Protection		3
NPRE 442 NPRE 444	Radioactive Waste Management Nuclear Analytical Methods Lab	2 or 3	3	NPRE 442 NPRE 444	Radioactive Waste Management Nuclear Analytical Methods Lab	2 or 3	3
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NPRE 451 NPRE 455	NPRE Laboratory		3	NPRE 451 NPRE 455	NPRE Laboratory Neutron Diffusion & Transport		3
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NPRE 475	Wind Power Systems	3 or 4		NPRE 475	Wind Power Systems	3 or 4	
PHYS 225 PHYS 325	Relativity & Math Applications Classical Mechanics I			PHYS 225 PHYS 325	Relativity & Math Applications Classical Mechanics I		2
PHYS 326 PHYS 401	Classical Mechanics II Classical Physics Lab			PHYS 326 PHYS 401	Classical Mechanics II Classical Physics Lab		3
PHYS 402	Light	3 or 4	3	PHYS 402	Light	3 or 4	3
PHYS 403 PHYS 406	Modern Experimental Physics Acoustical Physics of Music	4 or 5	4	PHYS 403 PHYS 406	Modern Experimental Physics Acoustical Physics of Music	4 or 5	4
PHYS 419	Space, Time, and Matter-ACP	3 or 4		PHYS 419	Space, Time, and Matter-ACP	3 or 4	
PHYS 420 PHYS 427	Space, Time, and Matter Thermal & Statistical Physics			PHYS 420 PHYS 427	Space, Time, and Matter Thermal & Statistical Physics		4
PHYS 460 PHYS 466	Condensed Matter Physics Atomic Scale Simulations	3 or 4	4	PHYS 460 PHYS 466	Condensed Matter Physics Atomic Scale Simulations	3 or 4	4
PHYS 470	Subatomic Physics	3014		PHYS 470	Subatomic Physics	3014	4
PHYS 485 PHYS 486	Atomic Phys & Quantum Theory Quantum Physics I			PHYS 485 PHYS 486	Atomic Phys & Quantum Theory Quantum Physics I		3
PHYS 487	Quantum Physics II		4	PHYS 487	Quantum Physics II		4
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SHS 301 SHS 320	General Speech Science			SHS 301 SHS 320	General Speech Science		4
SHS 450	Development of Spoken Language Intro Audiol & Hear Disorders		4	SHS 450	Development of Spoken Language Intro Audiol & Hear Disorders		3
SHS 470 STAT 420	Neural Bases Spch Lang Methods of Applied Statistics	3 or 4	4	SHS 470 STAT 420	Neural Bases Spch Lang Methods of Applied Statistics	3 or 4	4
STAT 424	Analysis of Variance	3 or 4		STAT 424	Analysis of Variance	3 or 4	
STAT 428 STAT 429	Statistical Computing Time Series Analysis	3 or 4 3 or 4		STAT 428 STAT 429	Statistical Computing Time Series Analysis	3 or 4 3 or 4	
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TAM 212 TAM 251	Introductory Dynamics Introductory Solid Mechanics			TAM 212 TAM 251	Introductory Dynamics Introductory Solid Mechanics		3
TAM 324 TAM 335	Behavior of Materials Introductory Fluid Mechanics			TAM 324 TAM 335	Behavior of Materials Introductory Fluid Mechanics		4
TAM 412	Intermediate Dynamics		4	TAM 412	Intermediate Dynamics		4
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- External transfer students take ENG 300 Instead.

 MATH 220 may be substituted, with four of the five a Freshmen take ECT 130 for 3 credit hours. Lab-only version 4 STAT 410 may be substituted.

 ECE 496 AND ECE 499 may be substituted.

 ECE 496 AND ECE 499 may be substituted.

 Advanced Composition may be satisfied by completing ECI.

 Advanced Composition may be satisfied by completing ECI.

 The Grainger College of Engineering approved liberal deug.

- External transfer students take ENG 300 instead.

 MATH 220 may be substituted, with four of the five credit hours applying toward the degree. MATH 220 is appropriate for students with no background in calculus.

 Freshmen take ECE 110 for 3 credit hours, Lab-only version taken by transfer students (with special permission) is 1 credit hour.

 STAT 410 may be substituted.

 SECE 496 AND ECE 496 may be substituted.

 ECE 496 AND ECE 496 may be substituted.

 Advanced Composition may be satisfied by completing ECE 445, or a course in either the general education or free elective categories which has the Advanced Composition designation.

 Advanced Composition may be satisfied by completing ECE 445, or a course in either the general education or free elective categories which has the Advanced Composition designation.

 Advanced Composition may be satisfied by completing ECE 445, or a course in either the general education or free elective categories which has the Advanced Composition designation.



MATHEMATICS

College of Liberal Arts & Sciences 273 Altgeld Hall, MC-382 1409 W. Green Street Urbana, IL 61801 USA

February 22, 2021

Erhan Kudeki
Professor and Associate Head for Undergraduate Affairs
Department of Electrical and Computer Engineering
University of Illinois at Urbana-Champaign

Dear Professor Kudeki,

Our department acknowledges and supports the proposed revision of the Electrical Engineering (EE) and Computer Engineering (CE) BS programs, to adopt MATH 257 as a required course for EE and CE majors to be taken after MATH 220/221 and before MATH 285, and to replace MATH 286 with MATH 285. The Department of Mathematics is prepared to accommodate the enrollment shifts among courses which will result from these changes.

In the event that this curricular revision is approved, the Mathematics Department will remove the phrase "Computer Engineering or Electrical Engineering" from the following statement in Course Explorer regarding MATH 285 (which can be found at https://courses.illinois.edu/schedule/2021/spring/MATH/285):

"not intended for Computer Engineering or Electrical Engineering or Math & CS major(s)."

Sincerely,

Jeremy Tyson

Professor and Chair

Department of Mathematics

University of Illinois at Urbana-Champaign

On Mar 18, 2021, at 11:14 AM, Aber, Mark S <maber@illinois.edu> wrote:

Dear Erhan,

We are happy to support ECE by welcoming your students into PSYC 204. Best of luck with your curriculum revision.

best, Mark

From: Kudeki, Erhan < erhan@illinois.edu > Sent: Thursday, March 11, 2021 4:45 PM
To: Aber, Mark S < maber@illinois.edu >

Cc: Kudeki, Erhan < erhan@illinois.edu">edu>; Newell, Brooke < bsnewell@illinois.edu>

Subject: Support letter request

Dear Mark.

I am writing to let you know that ECE has decided to add PSYC 204, Intro to Brain and Cognition, to its list of Technical Electives applicable to Electrical Engineering and Computer Engineering majors in our undergraduate program.

We have been asked by the College of Engineering to seek a letter of support from Psychology for this change as our curriculum revision proposal, approved by the College Executive Committee, goes up to the University Senate. Please provide us with such a letter of support. I'll be happy to answer any questions you may have about our request.

Thanks and best regards,

Erhan

Erhan Kudeki 2172650128 | erhan@illinois.edu Professor and Associate Head for Undergraduate Affairs Electrical and Computer Engineering, The Grainger College of Engineering 2080 ECE Building, 306 North Wright Street, Urbana, IL 61801

On Mar 18, 2021, at 2:52 PM, Rayburn, A Lane arayburn@illinois.edu wrote:

Hi Erhan

Crop Sciences supports adding CPSC 265 to the list of technical electives in ECE.

Just let me know if you need anything else.

Sincerely,

Lane

Dr. A. Lane Rayburn
Professor of Cytogenetics
Director of Undergraduate Studies
Department of Crop Sciences
University of Illinois
AE-120 Turner Hall
1102 S. Goodwin Ave
Urbana, IL 61801
Telephone - 217 333-4374.
http:// https://cropsciences.illinois.edu/people/profile/arayburn

From: Kudeki, Erhan < erhan@illinois.edu Sent: Thursday, March 18, 2021 10:47 AM

To: Tranel, Patrick J tranel@illinois.edu; Rayburn, A Lane arayburn@illinois.edu>

Cc: Kudeki, Erhan < <u>erhan@illinois.edu</u>> **Subject:** Re: Support letter request

Thanks Pat, I'm ashamed of my cut and paste error :-)

Lane, we will be needing the crop sciences support letter. We will be adding CPSC 265 to our very broad list of Technical Electives in ECE. Let me know if you have any questions.

Regards,

Erhan

Erhan Kudeki 2172650128 | erhan@illinois.edu Professor and Associate Head for Undergraduate Affairs Electrical and Computer Engineering, The Grainger College of Engineering 2080 ECE Building, 306 North Wright Street, Urbana, IL 61801

<image001.png>

On Mar 18, 2021, at 9:23 AM, Tranel, Patrick J < tranel@illinois.edu > wrote:

Erhan,

Sorry. I scanned your email before and deleted it because this is out of my jurisdiction, and because your email stated you needed a letter from atmospheric sciences, not crop sciences. After a closer read, I've passed your email on to our teaching coordinator, Lane Rayburn, who handles these.

Pat

PATRICK J TRANEL

Ainsworth Professor and Associate Head

University of Illinois at Urbana-Champaign College of Agricultural, Consumer and Environmental Sciences **Department of Crop Sciences 320 ERML** 1201 W Gregory Dr | M/C 051 Urbana, IL 61801 217.333.1531 | tranel@illinois.edu cropsciences.illinois.edu

<image001.png>

Under the Illinois Freedom of Information Act any written communication to or from university employees regarding university business is a public record and may be subject to public disclosure.

From: "Kudeki, Erhan" < erhan@illinois.edu> Date: Thursday, March 18, 2021 at 9:03 AM

To: Patrick Tranel < <u>tranel@illinois.edu</u>>

Cc: "Kudeki, Erhan" < erhan@illinois.edu>, "Newell, Brooke" < bsnewell@illinois.edu>

Subject: Re: Support letter request

Hi Patrick, a gentle reminder, thx,

Erhan

Erhan Kudeki 2172650128 | erhan@illinois.edu Professor and Associate Head for Undergraduate Affairs Electrical and Computer Engineering, The Grainger College of Engineering 2080 ECE Building, 306 North Wright Street, Urbana, IL 61801

On Mar 11, 2021, at 4:45 PM, Kudeki, Erhan < erhan@illinois.edu > wrote:

Dear Patrick,

I am writing to let you know that ECE has decided to add CPSC 265, Genetic Engineering Lab, to its list of Technical Electives applicable to Electrical Engineering and Computer Engineering majors in our undergraduate program.

We have been asked by the College of Engineering to seek a letter of support from Atmospheric Sciences for this change as our curriculum revision proposal, approved by the College Executive Committee, goes up to the University Senate. Please provide us with such a letter of support. I'll be happy to answer any questions you may have about our request.

Thanks and best regards,

Erhan

Erhan Kudeki

2172650128 | erhan@illinois.edu

Professor and Associate Head for Undergraduate Affairs

Electrical and Computer Engineering, The Grainger College of Engineering
2080 ECE Building, 306 North Wright Street, Urbana, IL 61801



COLLEGE OF LIBERAL ARTS & SCIENCES

Department of Atmospheric Sciences 3070 Natural History Building, MC-104 1301 W. Green St. Urbana, IL 61801-3070

March 15, 2021

Dear Professor Kudeki,

The Department of Atmospheric Sciences approves listing the class ATMS 201 (General Physical Meteorology) as Technical Elective for Electrical Engineering and Computer Engineering majors.

Sincerely,

Nicole Riemer

Professor and Associate Head

Department of Atmospheric Sciences

Vicole Riemer

UNIVERSITY OF ILLINOIS

Urbana-Champaign • Chicago • Springfield

University Senates Conference 378 Henry Administration Building 506 South Wright Street Urbana, IL 61801

February 26, 2020

Kathy Martensen Assistant Provost for Educational Programs 206 Swanlund, MC-304

Dear Kathy:

At its meeting on February 20, the University Senates Conference approved the proposed classification of minutes of the Urbana-Champaign Senate meeting of February 10. The Class I items are listed below.

EP.19.69	Establish a Major in Translational Medical Sciences in the Carle Illinois College of Medicine for the Degree of Master of Science
EP.20.34	Establish a Minor in Disability Studies in the Department of Kinesiology and Community Health, College of Applied Health Sciences
EP.20.44	Eliminate the BS MS in Industrial Engineering
EP.20.45	Eliminate the BS MS in Mechanical Engineering
EP.20.46	Revision of Curriculum Requirements for the Ph.D. in Civil Engineering to Add a 96-Credit Hour Option
EP.20.47	Revision of Curriculum Requirements for the Ph.D. in Environmental Engineering to Add a 96-Credit Hour Option
EP.20.48	Revision to the Master of Accounting Science (MAS) Degree Course Requirements
EP.20.49	Revision to Taxation Concentration. Revision to the Master of Accounting Science (MAS) Degree Course Requirements
EP.20.50	Revision to the Data Analytics Concentration. Revision to the Master of Accounting Science (MAS) Degree Course Requirements
EP.20.51	Financial Reporting & Assurance Concentration. Revision to the Master of Accounting Science (MAS) Degree Course Requirements

EP.20.52	Establish Joint Program in the Department of Animal Sciences for the BS/MANSC
EP.20.53	Establish a Joint BS (CS+ANSC)/MANSC Program in the Department of Animal Sciences
EP.20.54	Revise the BALAS in Classics, College of Liberal Arts and Sciences, to Eliminate the Five Ways Students Can Choose a Classics Major (Major in Classics (Without a Concentration) and the Four Concentrations in Greek, Latin, Classics, Classical Civilization, and Classical Archeology. Add Concentrations in Classical Languages and Classical Civilizations as the Only Two Options Students May Pursue a Classics Major
EP.20.55	Revise the BALAS in Classics, College of Liberal Arts and Sciences, Classical Archeology
EP.20.56	Revise the BALAS in Classics, College of Liberal Arts and Sciences, Classical Civilization
EP.20.57	Elimination of the Undergraduate Minor: Classical Archaeology. In Conjunction with the Elimination of Three Other Undergraduate Minors in the Department of Classics: Classical Civilization, Greek, Latin; and the Creation of Two Minors: Classical Civilizations and Classical Languages
EP.20.58	Elimination of the Undergraduate Minor: Greek Minor
EP.20.59	Elimination of the Undergraduate Minor: Classical Civilization
EP.20.60	Elimination of the Undergraduate Minor: Latin Minor
EP.20.61	Creation of a new Undergraduate Minor: Classical Civilizations
EP.20.62	Creation of a new Undergraduate Minor: Classical Languages
EP.20.63	Revise the BALAS in Classics, Classical Civilizations
EP.20.64	Revise the BALAS in Classics, Classical Languages
EP.20.65	Revising EdD Degree Program Course and Exam Requirement
EP.20.66	Revise the Minor in German, Department of Germanic Languages and Literatures
EP.20.67	Revise the BALAS in Classics
EP.20.68	Revise the BALAS in Classics: Latin

EP.20.69	Establish a New Master of Science (M.S.) in Mental Health Counseling in the Department of Educational Psychology, College of Education
EP.20.70	Proposal to Establish a New Bachelor of Science Degree with a Major in Plant Biotechnology (B.S. in Plant Biotech) in the Department of Crop Sciences, College of Agricultural, Consumer and Environmental Sciences
EP.20.71	Revision to the Chemistry Minor
EP.20.72	Urban Studies & Planning: Social Justice
EP.20.75	Remove Art History PhD, Art Education PhD, and Education Policy, Organization, and Leadership MA, EdM, and CAS from a List of Programs Participating in the Writing Studies Floating Concentration
EP.20.76	Create a new Minor in German Business and Commercial Studies
EP.20.77	Computer Science & Philosophy, BSLAS (Revisions to the BSLAS in Computer Science & Philosophy, Department of Philosophy)
EP.20.78	Computer Science Minor
EP.20.79	New Proposal for BFA in Theatre: Arts & Entertainment Technology
EP.20.80	Revising Requirements for BFA in Theatre: Scenic Design
EP.20.81	Revising Requirements for BFA in Theatre: Sound Design & Technology
EP.20.82	Revising Requirements for BFA in Theatre: Lighting Design & Technology
EP.20.83	Revising Requirements for BFA in Theatre: Scenic Technology
EP.20.84	Revising Requirements for BFA in Theatre: Costume Design & Technology
EP.20.85	Revising Requirements for BFA in Theatre: Acting
EP.20.86	Revising Requirements for BFA in Theatre
EP.20.87	Revising Requirements for BFA in Theatre: Theatre Studies
EP.20.88	Revising Requirements for BFA in Theatre: Stage Management
EP.20.89	Revising Requirements in Theatre Minor, UG

EP.20.90	Computer Science & Astronomy, BSLAS (Revise the BSLAS in Computer Science & Astronomy, College of Liberal Arts and Sciences)
EP.20.91	Revising Requirements for BS in Civil Engineering
EP.20.92	Revising Requirements for BS in Computer Engineering
EP.20.93	Revising Requirements for BSAG in Agricultural and Biological Engineering
EP.20.94	Revising Requirements for BS in Agricultural and Biological Engineering
EP.20.95	Revising Requirements for BS in Agricultural & Biological Engineering: Agricultural Engineering
EP.20.96	Revising Requirements for BS in Agricultural & Biological Engineering: Biological Engineering
EP.20.97	Revising Requirements for BS in Computer Science
EP.20.98	Revising Requirements for BS in Electrical Engineering
EP.20.99	Revising Requirements for BS in Engineering Mechanics
EP.20.100	Revising Requirements for BS in Engineering Physics
EP.20.101	Revising Requirements for BS in Systems Engineering & Design
EP.20.102	Revising Requirements for BS in Nuclear, Plasma, and Radiological Engineering
EP.20.103	Revising Requirements for BS in Mechanical Engineering
EP.20.104	Revising Requirements for BS in Materials Science & Engineering
SP.20.09	Proposed Revision to the <i>Constitution</i> , Article II, Section 1.b; Article III, Section 1; and Article IV, Section 1 Sincerely,

0.

Connie Sailor Administrative Aide

c: Ellen Foran, Renee Nagy Julian Parrott Jenny Roether Nathan Wilds

1PKS5964MS: BUSINESS ANALYTICS, MS

In Workflow

- 1. U Program Review (dforgacs@illinois.edu; eastuby@illinois.edu; aledward@illinois.edu)
- 2. 1902 Committee Chair (mwolter@illinois.edu; jloew@illinois.edu; bfulton@illinois.edu)
- 3. 1902 Head (cotnes@illinois.edu)
- 4. KM Grad Committee Chair (jloew@illinois.edu; wbe@illinois.edu)
- 5. KM Committee Chair (josephm@illinois.edu)
- 6. KM Dean (peecher@illinois.edu; mlschltz@illinois.edu)
- 7. University Librarian (jpwilkin@illinois.edu)
- 8. Grad_College (agrindly@illinois.edu; jch@illinois.edu; lowry@illinois.edu)
- 9. Provost (kmartens@illinois.edu)
- 10. Senate EPC (bjlehman@illinois.edu; moorhouz@illinois.edu; kmartens@illinois.edu)
- 11. Senate (jtempel@illinois.edu)
- 12. U Senate Conf (none)
- 13. Board of Trustees (none)
- 14. IBHE (none)
- 15. DMI (eastuby@illinois.edu; aledward@illinois.edu; dforgacs@illinois.edu)

Approval Path

- 1. Tue, 16 Mar 2021 22:38:34 GMT Deb Forgacs (dforgacs): Approved for U Program Review
- Tue, 16 Mar 2021 22:40:09 GMT Jeffrey Loewenstein (jloew): Approved for 1902 Committee Chair
- 3. Tue, 16 Mar 2021 22:56:37 GMT Cele Otnes (cotnes): Approved for 1902 Head
- 4. Wed, 17 Mar 2021 14:21:27 GMT
- Brooke Elliott (wbe): Approved for KM Grad Committee Chair
- Mon, 22 Mar 2021 22:14:21 GMT Joseph Mahoney (josephm): Approved for KM Committee Chair
- Mon, 22 Mar 2021 22:35:50 GMT Mark Peecher (peecher): Approved for KM Dean
- Mon, 22 Mar 2021 22:44:49 GMT John Wilkin (jpwilkin): Approved for University Librarian
- Wed, 24 Mar 2021 15:40:57 GMT
 Allison McKinney (agrindly): Approved for Grad_College
- 9. Wed, 24 Mar 2021 23:39:53 GMT Kathy Martensen (kmartens): Approved for Provost

History

- 1. Jan 8, 2021 by Lorena Nicholas (lorenan)
- 2. Jan 11, 2021 by Deb Forgacs (dforgacs)

Date Submitted: Tue, 16 Mar 2021 14:10:44 GMT

Viewing:1PKS5964MS: Business Analytics, MS

Changes proposed by: Lorena Nicholas

Proposal Type

Proposal Type:

Major (ex. Special Education)

This proposal is for a:
Revision
Proposal Title:
If this proposal is one piece of a multi-element change please include the other impacted programs here.example: A BS revision with multiple concentration revisions
Administrative approval: We are proposing three course changes to the analytics elective options for the MS Business Analytics program.
EP Control Number
EP.100
Official Program Name
Business Analytics, MS
Effective Catalog Term
Fall 2021
Sponsor College
Gies College of Business
Sponsor Department
Business Administration
Sponsor Name
Jeffrey Loewenstein, Associate Dean of Graduate Education; Robert Brunner, Associate Dean for Innovation
Sponsor Email
jloew@illinois.edu; bigdog@illinois.edu
College Contact
Lorena Nicholas
College Contact Email
lorenan@illinois.edu

Program Description and Justification

	Justification	for	proposal	change
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We are proposing three course changes to the analytics elective options for the MS Business Analytics program.

Specifically, the BADM 502 course was originally understood as a data visualization course, and so as meeting a program need. However, the course has been developed for non-quantitatively inclined students, and so is not providing the level of data visualization skill appropriate to this program. Consequently, we think it's best to remove it.

The BADM 543 course is a case class that might well be of interest as a general graduate elective option, but it is not an analytics course and so should not have been included as an analytics elective.

The BADM 550 course is a practicum course that we intend to use for students to do analytics projects with companies. Given those projects will

be analytics projects, it is appropriate for the course to count as an analytics elective rather than a general elective. Accordingly, it is appropriate reduce the general electives by the amount taken for the practicum course.
Corresponding Degree
MS Master of Science
Is this program interdisciplinary?
No
Academic Level
Graduate
Will you admit to the concentration directly?
No
Is a concentration required for graduation?
No
CIP Code
30.7102 - 30.7102
Is This a Teacher Certification Program?
No
Will specialized accreditation be sought for this program?
No

Admission Requirements

Desired Effective Admissions Term
Fall 2021
Is this revision a change to the admission status of the program?
No
Provide a brief narrative description of the admission requirements for this program. Where relevant, include information about licensure requirements, student background checks, GRE and TOEFL scores, and admission requirements for transfer students.
All applicants are expected to have a minimum grade point average of at least 3.0 (A = 4.00) for the last two years of undergraduate study and a 3.0 for any previous graduate work completed. The applicant must have completed at least one college level quantitative methods class. All applicants whose native language is not English must submit a minimum Test of English as a Foreign Language (TOEFL) score of at least 103 (iBT), 253 (CBT), or 610 (PBT); or minimum International English Language Testing System (IELTS) academic exam scores of 7.5 overall for full-status admission.
Describe how critical academic functions such as admissions and student advising are managed.
Gies College of Business has a complete unit dedicated to servicing graduate programs. The unit is overseen by the Associate Dean of Graduate Education. Additionally, there is a Director of Admissions and Recruiting and a Director of Administration who both supervise the staff teams providing recruiting, admission and student services, including all academic advising and support. The unit is well prepared to incorporate this new program.
Enrollment
Describe how this revision will impact enrollment and degrees awarded.
It will not impact enrollment and degrees awarded.
Estimated Annual Number of Degrees Awarded
Year One Estimate
30
5th Year Estimate (or when fully implemented)
100
What is the matriculation term for this program?
Fall
What is the typical time to completion of this program?
one year
What are the minimum Total Credit Hours required for this program?

Delivery Method

Is this program available on campus and online	?
No	

This program is available:

Blended

Describe the use of this delivery method:

Gies has demonstrated success in delivering on campus and online courses in Business Analytics. We anticipate interest from students in courses offered in both formats. For example, GMAC 2019 survey data indicate that potential students interested in residential Business Analytics graduate degree programs are most interested in a mix of residential and online classes. In addition, we have rapidly expanded our online course offerings in our MBA and Accountancy programs, and have experienced strong enrollments, strong student satisfaction, and are starting to see the career outcome benefits resulting from these efforts. Consequently, we believe offering Business Analytics using courses in both in person and online delivery formats is in the best interests of students.

We are preparing to launch a full-time, residential format in Fall 2021. We include within that planning the development of further online versions of courses for students who seek the added flexibility. After the program is successfully established, we may put forward a proposal for a fully online offering. The MS/IM program, for example, has provided both a residential and a fully online format, and the MCS program finds value in using a fully online format. Thus, we believe it is plausible that we will develop a fully online format as well. Our use of different course and program formats is based on our understanding of how to best meet student needs. We currently see strong interest for a full-time residential program. Should we see demand for a part-time, online program we will propose such a format and develop it.

Budget

Are there budgetary implications for this revision?

No

Will the program or revision require staffing (faculty, advisors, etc.) beyond what is currently available?

Yes

Please explain/describe:

The program will require a program director. All other staff functions would be performed by existing Business Graduate Programs staff.

Additional Budget Information

Attached is a projected budget for the first three years. The tuition levels are based on a competitive analysis of similar programs at peer institutions as well as tuition levels in related college programs. Further competitive analyses or college program tuition changes may lead to tuition changes in this program.

a. How will the unit create capacity or surplus to appropriately resource this program? If applicable, what functions or programs will the unit no longer support to create capacity?

Faculty will teach courses on-load or off-load as fits departmental and college resource allocation demands and faculty agreement. We will have sufficient faculty capacity to support the course offerings as a result of existing hiring efforts and changes in our College's overall teaching needs.

Existing advisors are learning to support analytics students, but it is likely that we will need to hire additional advisors with depth in this space. The resources to do so will be drawn from program tuition.

b. Will the unit need to seek campus or other external resources? If so, please provide a summary of the sources and an indication of the approved support.

We are not seeking any additional campus or external resources.

Resource implications
Facilities
Will the program require new or additional facilities or significant improvements to already existing facilities?
No
Technology
Will the program need additional technology beyond what is currently available for the unit?
No
Non-Technical Resources
Will the program require additional supplies, services or equipment (non-technical)?
No

Resources

For each of these items, be sure to include in the response if the proposed new program or change will result in replacement of another program(s). If so, which program(s), what is the anticipated impact on faculty, students, and instructional resources? Please attach any letters of support/ acknowledgement from faculty, students, and/or other impacted units as appropriate.

Faculty Resources

Please address the impact on faculty resources including any changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc. Describe how the unit will support student advising, including job placement and/or admission to advanced studies.

Adding this program will allow our college to make better use of existing faculty talent. We do not anticipate a direct effect on our college's number of faculty. We expect a mix of added course sections for this program and co-enrollments in existing courses currently serving other programs. Consequently, we expect modest increases in class size and, as a result, student-faculty ratios. We do not expect changes in teaching loads.

Library Resources

Describe your proposal's impact on the University Library's resources, collections, and services. If necessary please consult with the appropriate disciplinary specialist within the University Library.

We do not expect the program to have a noticeable effect on our college's use of library resources, or that this program will place additional demands on the library's collections or staff.

Instructional Resources

Will there be any reduction in other course offerings, programs or concentrations by your department as a result of this new program/proposed change?

No

Does the program include other courses/subjects impacted by the creation/revision of this program?

Yes

Required courses

BADM 554 - Enterprise Database Management FIN 510 - Big Data Analytics in Finance BDI 513 - Data Storytelling

Explain how the inclusion or removal of the courses/subjects listed above impacts the offering departments.

Adding this program will allow our college to make better use of existing faculty talent. We do not anticipate a direct effect on our college's number of faculty. We expect a mix of added course sections for this program and co-enrollments in existing courses currently serving other programs. Consequently, we expect modest increases in class size and, as a result, student-faculty ratios. We do not expect changes in teaching loads.

Financial Resources

How does the unit intend to financially support this proposal?

We have considerable faculty, staff, and infrastructure support to launch this program. We expect that enrollment and so revenue growth will provide the resources for expanding staff and infrastructure support.

Will the unit need to seek campus or other external resources?

No

Are you seeking a change in the tuition rate or differential for this program?

Yes

Is this program requesting self-supporting status?

Yes

Program Regulation and Assessment

Briefly describe the plan to assess and improve student learning, including the program's learning objectives; when, how, and where these learning objectives will be assessed; what metrics will be used to signify student's achievement of the stated learning objectives; and the process to ensure assessment results are used to improve student learning. (Describe how the program is aligned with or meets licensure, certification, and/or entitlement requirements, if applicable).

The Gies College of Business has a robust assurance of learning process, as it is required for AACSB accreditation. The College has a dedicated staff member who oversees all AACSB activities, as well as a dedicated eLearning team who work closely with faculty to create program assessment plans for their courses. The College will create an Assurance of Learning plan in line with AACSB and HLC standards as part of the rollout of the program. During the rollout phase, meetings with faculty to discuss program and course success will occur regularly and frequently to ensure that feedback and subsequent adjustments will occur as needed.

Each program has an Academic Director, a faculty member who leads assessment work, participates in Graduate Program Advisory Committee (Grad PAC), and oversees the implementation of any proposed and accepted changes to the program's structure, curriculum, and supporting activities. The current process for graduate programs includes the Academic Director meeting annually with faculty members to review curriculum plans, student feedback, benchmarking trends, and data in support of continuous improvement to ensure learning outcomes and results are aligned to internal and external stakeholder needs. As a result of such meetings, updates/changes, and enhancements are made to the curriculum and extracurricular offerings accordingly.

The assessment information is shared broadly with program, unit, and College leadership through both formal and informal presentations. Recipients of the information include Department Head, Associate Head, Assistant Dean of Graduate Education, members of the Grad PAC, Dean of the College, and faculty who teach in the program. The information is also maintained for inclusion in required AACSB accreditation reporting.

Our approach to program assessment is that it is a multi-level and multi-stage process.

I avale

- 1- Course Learning and Course Outcomes: The extent to which students are meeting the learning objectives of every course.
- 2- Program Outcomes: To what extent students meet the expectations based on the "program graduate profile", as to how will graduates of this program be unique and knowledgeable as a result of having been part of this program
- 3- Student Satisfaction
- 4- Stakeholder satisfaction
- 5- Impact in individuals, academic units and society

Stages

- 1- Formative evaluation will be conducted at the end of every course to address the results of
- a) Level 1. The sources to be considered will be students' performance, attrition, and course evaluation, At the end of every term there will be a debriefing process to inform changes for upcoming semesters.
- b) Level 3
- 2- Summative evaluation when a cohort completes the program will be conducted to assess
- a) Level 2
- b) Levels 3 and 4
- 3- Summative Evaluation over time will be conducted 2 and 3 years after a cohort has completed to assess impact of the program (Level 5). Source of information will include employment, type of employment, alumni income, and continuing education in other Gies programs.

Is the career/profession for graduates of this program regulated by the State of Illinois?

No

Program of Study

"Baccalaureate degree requires at least 120 semester credit hours or 180 quarter credit hours and at least 40 semester credit hours (60 quarter credit hours) in upper division courses" (source: https://www.ibhe.org/assets/files/PrivateAdminRules2017.pdf). For proposals for new bachelor's degrees, if this minimum is not explicitly met by specifically-required 300- and/or 400-level courses, please provide information on how the upper-division hours requirement will be satisfied.

All proposals must attach the new or revised version of the Academic Catalog program of study entry. Contact your college office if you have questions.

Revised programs

MS Analytics side by side comparison for CIM.xlsx

Attach a side-by-side comparison with the existing program AND, if the revision references or adds "chose-from" lists of courses students can select from to fulfill requirements, a listing of these courses, including the course rubric, number, title, and number of credit hours.

Catalog Page Text

Catalog Page Text: Description of program for the catalog page. This is not official content, it is used to help build the catalog pages for the program. Can be edited in the catalog by the college or department.

Business Analytics, MS

for the degree of Master of Science in Business Analytics department catalog page: Business Administration department website: Business Administration department faculty: Gies College of Business Directory

overview of college admissions & requirements: Gies Graduate Programs Requirements college website: Gies College of Business

email: grad@business.illinois.edu

The Master of Science (MS) in Business Analytics prepares students to master and apply contemporary analytics approaches to identify and address business problems and opportunities. It can be completed in residence or online. The course work includes foundations in managing, analyzing, and conveying patterns and implications of business data, followed by an array of analytics elective courses that enable students to deepen their skills and understanding in business application areas such as finance, accountancy, and marketing, among others. This is an intensive program for those interested in making decisions and innovating through the use of business analytics approaches.

Degree Requirements

for the degree of Master of Science in Business Analytics (on campus or on-line)

For additional details and requirements, refer to the department's Program Curriculum and the Graduate College Handbook.

Statement for Programs of Study Catalog

The MS in Business Analytics requires a minimum of 36 hours. The program rests on three required courses (12 credit hours) covering foundations of business data management, analysis, and communication. Students need to take at least four analytics elective courses (at least 16 credit hours) that will enable them to deepen their understanding of analytics methods and tools as well as to specialize in existing and emerging application areas. Finally, students are able to take up to two general elective courses (up to 8 credit hours) to provide foundations in application areas. Students with sufficient background may petition the academic director to replace core classes, with analytics electives. Additional analytics elective and general elective graduate course offerings may be approved by a program advisor.

Code	Title	Hours
Core Courses:		
BADM 554	Enterprise Database Management	4
FIN 510	Big Data Analytics in Finance for Predictive and Causal Analysis	4
BDI 513	Data Storytelling	4
Analytics Electives		20-24
BADM 502	Communicating with Data and Decision Making	
BADM 543	Technology Strategy	
BADM 550	Business Practicum	
BADM 557	Business Intelligence	
BADM 562	Social Media Strategy	
BADM 571	Digital Business & IT Strategy	
BADM 572	Stat for Mgt Decision Making	

BADM 573	Decision Analytics	
BADM 575	Supply Chain Analytics	
BADM 576	Data Science and Analytics	
BADM 577	Predictive Data Analytics	
BADM 590	Seminar in Business Admin	
FIN 552	Applied Financial Econometrics	
FIN 553	Machine Learning in Finance	
FIN 555	Financial Innovation	
FIN 567	Financial Risk Management	
FIN 580	Special Topics in Finance	
ACCY 512	Data Analytics for Management Accounting	
ACCY 569	Data Driven Decisions in Accounting	
ACCY 570	Data Analytics Foundations for Accountancy	
ACCY 571	Statistical Analyses for Accountancy	
ACCY 575	Data Analytics Applications in Accountancy	
ACCY 576	Data Preparation for Accounting	
ACCY 577	Machine Learning for Accounting	
ACCY 593	Special Research Problems	
General Graduate Electives - Gradua minimum number of hours required.	te General Electives - up to 8 hours of general graduate electives as needed to meet the	0 to 8
General Graduate Electives		0 to 4
Total Hours		36

Other Requirements

Requirement	Description
Other requirements may overlap	
Minimum 500-level Hours Required Overall	12
Minimum GPA:	3.0

International students with TOEFL scores below 613 (paper-based), 257 (computer-based), or 103 (internet-based), or IELTS score below 7.0, are required to take the English Placement Test (EPT) when they arrive on campus. After taking the EPT, most students are required to take a Business English course sequence. For these students, completion of the ESL course sequence is mandatory but does not count towards the 36 hour degree requirement.

EP Documentation

DMI Documentation

Banner/Codebook Name

MS:Business Analytics - UIUC

Program Code:

1PKS5964MS

Degree Code

MS

Major Code

5964

Program Reviewer Comments

Deb Forgacs (dforgacs) (Thu, 11 Mar 2021 21:27:35 GMT):Rollback: proposal title

Cele Otnes (cotnes) (Fri, 12 Mar 2021 15:41:31 GMT):Rollback: Lorena:There is much discussion going on between BA and BGP about the electives for this program. And now you have a new MSBA Director. I would like Vishal to discuss these changes with Carlos before approving them, as he will be the first BA Head who will be in place once the program launches. Thanks.

Allison McKinney (agrindly) (Wed, 24 Mar 2021 15:40:43 GMT): Administratively approved by the Graduate College.

Kathy Martensen (kmartens) (Wed, 24 Mar 2021 23:39:50 GMT): Administrative approval: No change to total hours required, does not restrict student options.

Key: 961

5468: CORPORATE GOVERNANCE & INTERNATIONAL BUSINESS - FLOATING

In Workflow

- 1. U Program Review (dforgacs@illinois.edu; eastuby@illinois.edu; aledward@illinois.edu)
- 2. KM Grad Committee Chair (jloew@illinois.edu; wbe@illinois.edu)
- 3. KM Committee Chair (josephm@illinois.edu)
- 4. KM Dean (peecher@illinois.edu; mlschltz@illinois.edu)
- 5. University Librarian (jpwilkin@illinois.edu)
- 6. Grad_College (agrindly@illinois.edu; jch@illinois.edu; lowry@illinois.edu)
- 7. Provost (kmartens@illinois.edu)
- 8. Senate EPC (bjlehman@illinois.edu; moorhouz@illinois.edu; kmartens@illinois.edu)
- 9. Senate (jtempel@illinois.edu)
- 10. U Senate Conf (none)
- 11. Board of Trustees (none)
- 12. IBHE (none)
- 13. DMI (eastuby@illinois.edu; aledward@illinois.edu; dforgacs@illinois.edu)

Approval Path

- Fri, 12 Mar 2021 15:18:39 GMT
 Deb Forgacs (dforgacs): Approved for U Program Review
- Wed, 17 Mar 2021 14:21:30 GMT Brooke Elliott (wbe): Approved for KM Grad Committee Chair
- 3. Mon, 22 Mar 2021 22:14:25 GMT

 Joseph Mahoney (josephm): Approved for KM Committee Chair
- 4. Mon, 22 Mar 2021 22:35:53 GMT Mark Peecher (peecher): Approved for KM Dean
- 5. Mon, 22 Mar 2021 22:45:09 GMT John Wilkin (jpwilkin): Approved for University Librarian
- 6. Wed, 24 Mar 2021 15:41:08 GMT
- Allison McKinney (agrindly): Approved for Grad_College
 7. Wed, 24 Mar 2021 23:41:40 GMT
 Kathy Martensen (kmartens): Approved for Provost

History

- 1. Aug 20, 2019 by Deb Forgacs (dforgacs)
- 2. Jan 9, 2020 by Deb Forgacs (dforgacs)

Date Submitted:Thu, 11 Mar 2021 21:31:04 GMT

Viewing: 5468: Corporate Governance & International Business - Floating

Changes proposed by: Lorena Nicholas

Proposal Type

Proposal Type:

Concentration (ex. Dietetics)

This proposal is for a:

Revision

Proposal Title:
If this proposal is one piece of a multi-element change please include the other impacted programs here.example: A BS revision with multiple concentration revisions
Administrative approval: We are proposing to add the MS Management program to list of graduate programs in the College that are eligible to pursue this concentration.
EP Control Number
EP.100
Official Program Name
Corporate Governance & International Business - Floating
Effective Catalog Term
Fall 2021
Sponsor College
Gies College of Business
Sponsor Department
Gies BUS Admin
Sponsor Name
Jeffrey Loewenstein
Sponsor Email
jloew@illinois.edu
College Contact
Lorena Nicholas
College Contact Email
lorenan@illinois.edu
Program Description and Justification

This proposal is to add the MS Management program to the list of programs eligible to pursue this concentration. This will be consistent with other

Justification for proposal change:

graduate programs in the College that offer this concentration to their students.

Is this program interdisciplinary?
No No
Corresponding Program(s):
Corresponding Program(s)
Accountancy, MS (on campus online)
Accountancy, MAS
Business Administration, MBA (Full-Time)
Business Administration, MBA (part-time)
Business Administration, MS
Finance, MS
Management, MS (on-campus online)
Academic Level
Graduate
Gaddate
Is This a Teacher Certification Program?
No
Will specialized accreditation be sought for this program?
No
Enrollment
Describe how this revision will impact enrollment and degrees awarded.
This revision will not negatively impact enrollment and the degrees awarded. By adding the MS Management program there may be an increase in the
total number of students pursuing this concentration.
What is the typical time to completion of this program?
one year
What are the minimum Total Credit Hours required for this program?
12
Delivery Method

No

Is this program available on campus and online?

This program is available:
On Campus
Budget
Are there budgetary implications for this revision?
No
Will the program or revision require staffing (faculty, advisors, etc.) beyond what is currently available? No
Resource Implications
Facilities
Will the program require new or additional facilities or significant improvements to already existing facilities? No
Technology
Will the program need additional technology beyond what is currently available for the unit?
No
Non-Technical Resources
Will the program require additional supplies, services or equipment (non-technical)?
No
Resources
For each of these items, be sure to include in the response if the proposed new program or change will result in replacement of another program(s). If so, which program(s), what is the anticipated impact on faculty, students, and instructional resources? Please attach any letters of support/acknowledgement from faculty, students, and/or other impacted units as appropriate.

Faculty Resources

Please address the impact on faculty resources including any changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc. Describe how the unit will support student advising, including job placement and/or admission to advanced studies.
There is no impact on faculty resources.
Library Resources
Describe your proposal's impact on the University Library's resources, collections, and services. If necessary please consult with the appropriate disciplinary specialist within the University Library.
There is no impact on library resources.
Instructional Resources
Will there be any reduction in other course offerings, programs or concentrations by your department as a result of this new program/proposed change?
No No
Does the program include other courses/subjects impacted by the creation/revision of this program?
No
Financial Resources
Will the unit need to seek campus or other external resources?
No
Is this program requesting self-supporting status?
No
Program Regulation and Assessment
Briefly describe the plan to assess and improve student learning, including the program's learning objectives; when, how, and where these learning objectives will be assessed; what metrics will be used to signify student's achievement of the stated learning objectives; and the process to ensure

assessment results are used to improve student learning. (Describe how the program is aligned with or meets licensure, certification, and/or

This concentration and the courses required to complete it will be reviewed regularly as part of our AACSB accreditation process.

Is the career/profession for graduates of this program regulated by the State of Illinois?

entitlement requirements, if applicable).

Program of Study

"Baccalaureate degree requires at least 120 semester credit hours or 180 quarter credit hours and at least 40 semester credit hours (60 quarter credit hours) in upper division courses" (source: https://www.ibhe.org/assets/files/PrivateAdminRules2017.pdf). For proposals for new bachelor's degrees, if this minimum is not explicitly met by specifically-required 300- and/or 400-level courses, please provide information on how the upper-division hours requirement will be satisfied.

All proposals must attach the new or revised version of the Academic Catalog program of study entry. Contact your college office if you have questions.

Attach a side-by-side comparison with the existing program AND, if the revision references or adds "chose-from" lists of courses students can select from to fulfill requirements, a listing of these courses, including the course rubric, number, title, and number of credit hours.

Catalog Page Text

Statement for Programs of Study Catalog

Code	Title	Hours
Select three of the following:		12
BADM 532	Sustainable Product Design & Enterprise Plan Development - I: Bottom-Up Immersion & Design	
BADM 582	Multinational Management	
BADM 583	Current Topics in Intl Bus	
BADM 584	Global Marketing	
BADM 586	Intl Comparative Management	
BADM 590	Seminar in Business Admin (US Corporate Governance)	
BADM 590	Seminar in Business Admin (Technology and Globalization)	
BADM 590	Seminar in Business Admin (Global Strategy)	
Total Hours		12

EP Documentation

DMI Documentation

Banner/Codebook Name

Corp Governance & Int Business

Program Code:

5468

Conc Code

5468

Program Reviewer Comments

Deb Forgacs (dforgacs) (Thu, 11 Mar 2021 21:21:42 GMT):Rollback: proposal title and justification.

Allison McKinney (agrindly) (Wed, 24 Mar 2021 15:41:05 GMT):Administratively approved by the Graduate College.

Kathy Martensen (kmartens) (Wed, 24 Mar 2021 23:41:36 GMT):Administrative approval: No change to total hours required, does not restrict student options.

Key: 839

5469: INFORMATION TECHNOLOGY & CONTROL - FLOATING

In Workflow

- 1. U Program Review (dforgacs@illinois.edu; eastuby@illinois.edu; aledward@illinois.edu)
- 2. 1902 Committee Chair (mwolter@illinois.edu; jloew@illinois.edu; bfulton@illinois.edu)
- 3. 1902 Head (cotnes@illinois.edu)
- 4. KM Grad Committee Chair (jloew@illinois.edu; wbe@illinois.edu)
- 5. KM Committee Chair (josephm@illinois.edu)
- 6. KM Dean (peecher@illinois.edu; mlschltz@illinois.edu)
- 7. University Librarian (jpwilkin@illinois.edu)
- 8. Grad_College (agrindly@illinois.edu; jch@illinois.edu; lowry@illinois.edu)
- 9. Provost (kmartens@illinois.edu)
- 10. Senate EPC (bjlehman@illinois.edu; moorhouz@illinois.edu; kmartens@illinois.edu)
- 11. Senate (jtempel@illinois.edu)
- 12. U Senate Conf (none)
- 13. Board of Trustees (none)
- 14. IBHE (none)
- 15. DMI (eastuby@illinois.edu; aledward@illinois.edu; dforgacs@illinois.edu)

Approval Path

- 1. Tue, 16 Mar 2021 22:38:38 GMT Deb Forgacs (dforgacs): Approved for U Program Review
- Tue, 16 Mar 2021 22:40:12 GMT Jeffrey Loewenstein (jloew): Approved for 1902 Committee Chair
- 3. Tue, 16 Mar 2021 22:56:49 GMT Cele Otnes (cotnes): Approved for 1902 Head
- 4. Wed, 17 Mar 2021 14:21:33 GMT
- Brooke Elliott (wbe): Approved for KM Grad Committee Chair
- 5. Mon, 22 Mar 2021 22:14:27 GMT Joseph Mahoney (josephm): Approved for KM Committee Chair
- Mon, 22 Mar 2021 22:35:56 GMT Mark Peecher (peecher): Approved for KM Dean
- Mon, 22 Mar 2021 22:45:23 GMT John Wilkin (jpwilkin): Approved for University Librarian
- Wed, 24 Mar 2021 15:41:16 GMT
 Allison McKinney (agrindly): Approved for Grad_College
- 9. Wed, 24 Mar 2021 23:42:30 GMT Kathy Martensen (kmartens): Approved for Provost

History

- 1. Dec 27, 2018 by Deb Forgacs (dforgacs)
- 2. Jan 15, 2019 by Deb Forgacs (dforgacs)
- 3. Aug 8, 2019 by Deb Forgacs (dforgacs)
- 4. Jan 9, 2020 by Deb Forgacs (dforgacs)

Date Submitted:Tue, 16 Mar 2021 14:10:17 GMT

Viewing:5469: Information Technology & Control - Floating

Changes proposed by: Lorena Nicholas

Proposal Type Proposal Type: Concentration (ex. Dietetics) This proposal is for a: Revision Proposal Title: If this proposal is one piece of a multi-element change please include the other impacted programs here.example: A BS revision with multiple concentration revisions Administrative approval: We are proposing an update to the Information Technology and Control concentration requirements. The proposal includes making two courses mandatory as a foundation. Students would then have three other courses to select from to meet the 12 hours required. **EP Control Number** EP.21.100 Official Program Name Information Technology & Control - Floating **Effective Catalog Term** Fall 2021 **Sponsor College** Gies College of Business **Sponsor Department Business Administration Sponsor Name** Jeffrey Loewenstein

College Contact

Sponsor Email jloew@illinois.edu

Lorena Nicholas

College Contact Email

lorenan@illinois.edu

Program Description and Justification

Justification for proposal change:

The concentration is being updated to make previously optional selections mandatory as a foundation, as well as exchange a course no longer actively taught with a newer course that is. The emphasis on BADM 554 and 555 is due to those courses now being considered central and the other courses as extensions. The Social Media Strategy course has become well established and designed to extend the 554 and 555 classes.

While we generally prefer to increase flexibility, area faculty have updated the courses such that they are now better seen as foundation and extensions rather than of equal standing. Normally this would also be accompanied by designating some classes as pre-requisites to others. However, because these are graduate courses in 1-year programs, course schedules do not always make it feasible to allow such timing. Accordingly, the design of the concentration will serve to provide this structuring of what is foundational and what is an elective extension.

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No

Corresponding Program(s):

Corresponding Program(s)

Accountancy, MAS

Accountancy, MS (on campus online)

Business Administration, MBA (Full-Time)

Business Administration, MBA (part-time)

Finance, MS

Technology Management, MS

Academic Level

Graduate

Additional concentration notes (e.g., estimated enrollment, advising plans, etc.)

This revision will not impact enrollment or advising.

Is This a Teacher Certification Program?

No

Will specialized accreditation be sought for this program?

Enrollment

Describe how this revision will impact enrollment and degrees awarded.
This revision will not impact enrollment and degrees awarded.
What is the typical time to completion of this program?
2 semesters
What are the minimum Total Credit Hours required for this program?
12
Delivery Method
s this program available on campus and online?
No
This program is available:
On Campus
Budget
Are there budgetary implications for this revision?
No
Will the program or revision require staffing (faculty, advisors, etc.) beyond what is currently available?
No
Resource Implications
Facilities
Will the program require new or additional facilities or significant improvements to already existing facilities?
No
Technology
Will the program need additional technology beyond what is currently available for the unit?

Non-Technical Resources
Will the program require additional supplies, services or equipment (non-technical)?
No
Resources
For each of these items, be sure to include in the response if the proposed new program or change will result in replacement of another program(s) If so, which program(s), what is the anticipated impact on faculty, students, and instructional resources? Please attach any letters of support/acknowledgement from faculty, students, and/or other impacted units as appropriate.
Faculty Resources
Please address the impact on faculty resources including any changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc Describe how the unit will support student advising, including job placement and/or admission to advanced studies.
This will not impact faculty resources.
Library Resources
Describe your proposal's impact on the University Library's resources, collections, and services. If necessary please consult with the appropriate disciplinary specialist within the University Library.
This will not impact library resources.
Instructional Resources
Will there be any reduction in other course offerings, programs or concentrations by your department as a result of this new program/proposed change?
No
Does the program include other courses/subjects impacted by the creation/revision of this program?
No
Financial Resources
How does the unit intend to financially support this proposal?
See attached.
Will the unit need to seek campus or other external resources?

Is this program requesting self-supporting status?

No

Program Regulation and Assessment

Briefly describe the plan to assess and improve student learning, including the program's learning objectives; when, how, and where these learning objectives will be assessed; what metrics will be used to signify student's achievement of the stated learning objectives; and the process to ensure assessment results are used to improve student learning. (Describe how the program is aligned with or meets licensure, certification, and/or entitlement requirements, if applicable).

The courses for this concentration will be reviewed regularly as part of AACSB accreditation.

Is the career/profession for graduates of this program regulated by the State of Illinois?

No

Program of Study

"Baccalaureate degree requires at least 120 semester credit hours or 180 quarter credit hours and at least 40 semester credit hours (60 quarter credit hours) in upper division courses" (source: https://www.ibhe.org/assets/files/PrivateAdminRules2017.pdf). For proposals for new bachelor's degrees, if this minimum is not explicitly met by specifically-required 300- and/or 400-level courses, please provide information on how the upper-division hours requirement will be satisfied.

All proposals must attach the new or revised version of the Academic Catalog program of study entry. Contact your college office if you have questions.

Revised programs

ITC concentration side by side for CIM.xlsx

Attach a side-by-side comparison with the existing program AND, if the revision references or adds "chose-from" lists of courses students can select from to fulfill requirements, a listing of these courses, including the course rubric, number, title, and number of credit hours.

Catalog Page Text

Statement for Programs of Study Catalog

Code	Title	Hours
BADM 554	Enterprise Database Management	
BADM 555	Info Sys Development and Mgt	
BADM 556	Electronic Commerce	
Select from the following:		
BADM 557	Business Intelligence	
BADM 559	Enterprise IT Governance	

BADM 562

Social Media Strategy

Total Hours 12

EP Documentation

DMI Documentation

Banner/Codebook Name

Information Technology and Control

Program Code:

5469

Conc Code

5469

Program Reviewer Comments

Deb Forgacs (dforgacs) (Thu, 11 Mar 2021 21:22:14 GMT):Rollback: proposal title.

Cele Otnes (cotnes) (Fri, 12 Mar 2021 15:42:02 GMT):Rollback: Lorena: Same reason for the rollback for all of these courses as mentioned for the first proposal. Thanks.

Allison McKinney (agrindly) (Wed, 24 Mar 2021 15:41:14 GMT): Administratively approved by the Graduate College.

Kathy Martensen (kmartens) (Wed, 24 Mar 2021 23:42:25 GMT): Administrative approval: No change to total hours required, does not restrict student options.

Key: 529

Current:		Proposed:	
BADM 554	Enterprise Database Management	BADM 554	Enterprise Database Management
BADM 555	Info Sys Development and Mgt	BADM 555	Info Sys Development and Mgt
BADM 556	Electronic Commerce		Select from the following:
BADM 557	Dec Support and Knowledge Mgt	BADM 557	Business Intelligence
BADM 559	Enterprise IT Governance	BADM 559	Enterprise IT Governance
		BADM 562	Social Media Strategy

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN SENATE

(Final; Information)

EP.19.09 Report of Administrative Approvals at the September 17, 2018 meeting of the EPC.

Graduate Programs

Graduate Concentration in Information Technology and Control – Add the part-time Master of Business Administration (PMBA) to the list of programs participating in the Graduate Concentration in Information Technology and Control offered by the Department of Business Administration. The concentration requirements would remain unchanged and would be the same for the PMBA as they are for all previously-approved programs that participate in the concentration.

Graduate Concentration in Accountancy – Add the part-time Master of Business Administration (PMBA) to the list of programs participating in the Graduate Concentration in Accountancy offered by the Department of Accountancy. The concentration requirements would remain unchanged and would be the same for the PMBA as they are for all previously-approved programs that participate in the concentration.

Ph.D. in Music Education – 1) Replace MUS 536, Soc-Cultur Inquiry Music Learn (4 hours) with MUS 543, Music Teacher Education (4 hours) as a specifically-required course and 2) Move MUS 536 to the list of Music Education Electives from which students are to select a total of 6 hours. This revision stems from the current faculty's revised goals for the program, which place emphasis on preparing students as educators of music teachers. It does not alter the total number of hours required for the degree.

Doctor of Musical Arts (DMA), Music Composition Concentration; Performance and Literature Concentration; and Vocal Coaching and Accompanying Concentration – In these three concentrations, add MUS 522, Special Topics Seminar (4 hours), to the list of Advanced Musicology courses from which students are to select 8 hours. There is no change to the total hours required for the concentrations or for the degree.

Master of Arts in Spanish, Concentration in Spanish Literatures and Cultures – Revise the "Other Requirements" to replace the requirement of completing three comprehensive exams with the requirement of submitting a research paper.

Current -- Other Requirements

Proposed -- Other Requirements

Requirement	Description	Requirement	Description
Other requirements may overlap		Other requirements may overlap	
A concentration is required		A concentration is required	
SPAN 571 is required of all teaching		SPAN 571 is required of all teaching	
assistants		assistants	

Students must also complete three		Students must also submit a
comprehensive exams on areas		research paper completed in
chosen in consultation with their		consultation with their advisors.
advisors.		
Minimum 500-level Hours	16	Minimum 500-level Hours Required 16
Required Overall:		Overall:
Minimum GPA:	3.0	Minimum GPA: 3.0

Undergraduate Programs

Bachelor of Science in Animal Sciences, all concentrations – Switch ANSC 306, Equine Science (3 hours) from the "Basic Science" list of courses from which students select 6 hours (all concentrations) to the "Applied Science" list of courses from which students select 6 hours in the Companion Animal and Equine Science Concentration and in the Science, Pre-Veterinary and Medical Concentration and 12 hours in the Food Animal Production and Management Concentration. In the Companion Animal and Equine Science Concentration, the course will remain in the specific course options where a student chooses one group (6 hours) from ANSC 206 and ANSC 306 or ANSC 250 and ANSC 307, and it will remain the case that the course cannot be used to meet more than one requirement.

This change does not alter the number of hours required for any of the concentrations or the total number of hours required for the degree.

Undergraduate Minor in Business — 1) Eliminate the currently required admission application. Requirements to officially declare the minor will be sophomore standing and completion and submission of the university's Minor Declaration Form. 2) Eliminate restrictions on courses that count toward the minor such that non-business major/minor students will be able to register. Non-business major students who wish to register for courses that are part of the Business Minor will be expected to enroll in online sections of these courses when online sections are available. 3) Revise the prerequisites for Business Minor core courses such that CS 105, Intro Computing: Non-Tech (3 hours), MATH 234, Calculus for Business I (4 hours), and STAT 100, Statistics (3 hours) will no longer be required but instead presented as recommended courses. Only ECON 102, Microeconomics (3 hours) remains a prerequisite to the core course FIN 221, Corporate Finance (3 hours). Other prerequisites do continue to apply to certain Business Minor elective courses. Documentation of notification of the Departments of Computer Science, Mathematics, and Statistics is attached.

None of these changes impact the total number of hours required for the minor.

The item struck through above has been submitted as EP.19.10.

5470: SUPPLY CHAIN MANAGEMENT - FLOATING

In Workflow

- 1. U Program Review (dforgacs@illinois.edu; eastuby@illinois.edu; aledward@illinois.edu)
- 2. 1902 Committee Chair (mwolter@illinois.edu; jloew@illinois.edu; bfulton@illinois.edu)
- 3. 1902 Head (cotnes@illinois.edu)
- 4. KM Grad Committee Chair (jloew@illinois.edu; wbe@illinois.edu)
- 5. KM Committee Chair (josephm@illinois.edu)
- 6. KM Dean (peecher@illinois.edu; mlschltz@illinois.edu)
- 7. University Librarian (jpwilkin@illinois.edu)
- 8. Grad_College (agrindly@illinois.edu; jch@illinois.edu; lowry@illinois.edu)
- 9. Provost (kmartens@illinois.edu)
- 10. Senate EPC (bjlehman@illinois.edu; moorhouz@illinois.edu; kmartens@illinois.edu)
- 11. Senate (jtempel@illinois.edu)
- 12. U Senate Conf (none)
- 13. Board of Trustees (none)
- 14. IBHE (none)
- 15. DMI (eastuby@illinois.edu; aledward@illinois.edu; dforgacs@illinois.edu)

Approval Path

- 1. Tue, 16 Mar 2021 22:38:42 GMT Deb Forgacs (dforgacs): Approved for U Program Review
- Tue, 16 Mar 2021 22:40:15 GMT Jeffrey Loewenstein (jloew): Approved for 1902 Committee Chair
- 3. Tue, 16 Mar 2021 22:57:01 GMT Cele Otnes (cotnes): Approved for 1902 Head
- 4. Wed, 17 Mar 2021 14:21:36 GMT
- Brooke Elliott (wbe): Approved for KM Grad Committee Chair
- Mon, 22 Mar 2021 22:14:30 GMT Joseph Mahoney (josephm): Approved for KM Committee Chair
- Mon, 22 Mar 2021 22:35:58 GMT Mark Peecher (peecher): Approved for KM Dean
- 7. Mon, 22 Mar 2021 22:45:37 GMT John Wilkin (jpwilkin): Approved for University Librarian
- 8. Wed, 24 Mar 2021 15:41:25 GMT Allison McKinney (agrindly): Approved for Grad_College
- 9. Wed, 24 Mar 2021 23:47:27 GMT Kathy Martensen (kmartens): Approved for Provost

History

- 1. Aug 8, 2019 by Deb Forgacs (dforgacs)
- 2. Jan 9, 2020 by Deb Forgacs (dforgacs)
- 3. Jun 10, 2020 by Deb Forgacs (dforgacs)

Date Submitted: Tue. 16 Mar 2021 14:11:05 GMT

Viewing:5470: Supply Chain Management - Floating

Changes proposed by: Lorena Nicholas

Proposal Type

Proposal Type:

Concentration (ex. Dietetics)

This proposal is for a:
Revision
Proposal Title:
If this proposal is one piece of a multi-element change please include the other impacted programs here.example: A BS revision with multiple concentration revisions
Administrative approval: Proposed course list update to the Supply Chain Management concentration The updated list reflects new course numbers for two courses and replacing a course that is no longer actively taught with a more relevant course.
EP Control Number
EP.21.100
Official Program Name
Supply Chain Management - Floating
Effective Catalog Term
Fall 2021
Sponsor College
Gies College of Business
Sponsor Department
Business Administration
Sponsor Name
Jeffrey Loewenstein
Sponsor Email
jloew@illinois.edu
College Contact
Lorena Nicholas
College Contact Email
lorenan@illinois.edu

Program Description and Justification

Justification	for	proposal	change:

We are proposing a modest update to the supply chain management concentration based on course developments in the area. Two special topics courses now has their own course numbers, and so we are updating them. The planning and control systems course is no longer actively taught and instead supply chain analytics has become a reliably taught elective of interest.

Is this program interdisciplinary?

No

Corresponding Program(s):

Corresponding Program(s)

Accountancy, MAS

Business Administration, MBA (Full-Time)

Business Administration, MBA (part-time)

Business Administration, MS

Accountancy, MS (on campus online)

Technology Management, MS

Academic Level

Graduate

Is This a Teacher Certification Program?

No

Will specialized accreditation be sought for this program?

No

Enrollment

Describe how this revision will impact enrollment and degrees awarded.

This should not impact enrollment or degrees awarded

What is the typical time to completion of this program?

2 semesters

What are the minimum Total Credit Hours required for this program?

Delivery Method

Is this program available on campus and online?
This program is available: On Campus
Budget
Are there budgetary implications for this revision? No
Will the program or revision require staffing (faculty, advisors, etc.) beyond what is currently available?
Resource Implications
Facilities
Will the program require new or additional facilities or significant improvements to already existing facilities? No
Technology
Will the program need additional technology beyond what is currently available for the unit? No
Non-Technical Resources
Will the program require additional supplies, services or equipment (non-technical)? No

Resources

For each of these items, be sure to include in the response if the proposed new program or change will result in replacement of another program(s). If so, which program(s), what is the anticipated impact on faculty, students, and instructional resources? Please attach any letters of support/acknowledgement from faculty, students, and/or other impacted units as appropriate.				
Faculty Resources				
Please address the impact on faculty resources including any changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc. Describe how the unit will support student advising, including job placement and/or admission to advanced studies.				
This will not impact faculty resources.				
Library Resources				
Describe your proposal's impact on the University Library's resources, collections, and services. If necessary please consult with the appropriate disciplinary specialist within the University Library.				
This will not impact library resources.				
Instructional Resources				
Will there be any reduction in other course offerings, programs or concentrations by your department as a result of this new program/proposed change?				
No				
Does the program include other courses/subjects impacted by the creation/revision of this program? No				
Financial Resources				
Will the unit need to seek campus or other external resources?				
No				
Is this program requesting self-supporting status?				

Program Regulation and Assessment

Briefly describe the plan to assess and improve student learning, including the program's learning objectives; when, how, and where these learning objectives will be assessed; what metrics will be used to signify student's achievement of the stated learning objectives; and the process to ensure assessment results are used to improve student learning. (Describe how the program is aligned with or meets licensure, certification, and/or entitlement requirements, if applicable).

This courses for the concentration will be reviewed regularly as part of our AACSB accreditation process.

Is the career/profession for graduates of this program regulated by the State of Illinois?

No

Program of Study

"Baccalaureate degree requires at least 120 semester credit hours or 180 quarter credit hours and at least 40 semester credit hours (60 quarter credit hours) in upper division courses" (source: https://www.ibhe.org/assets/files/PrivateAdminRules2017.pdf). For proposals for new bachelor's degrees, if this minimum is not explicitly met by specifically-required 300- and/or 400-level courses, please provide information on how the upper-division hours requirement will be satisfied.

All proposals must attach the new or revised version of the Academic Catalog program of study entry. Contact your college office if you have questions.

Revised programs

Supply Chain Management concentration side by side March 1.xlsx

Attach a side-by-side comparison with the existing program AND, if the revision references or adds "chose-from" lists of courses students can select from to fulfill requirements, a listing of these courses, including the course rubric, number, title, and number of credit hours.

Catalog Page Text

Statement for Programs of Study Catalog

Code	Title	Hours
BADM 566	Supply Chain Management	2-4
BADM 567	Process Management	2-4
Select from the following:		
BADM 568	Planning and Control Systems	
BADM 564	Business Process Improvement	
BADM 565	Strategic Sourcing	
BADM 575	Supply Chain Analytics	
BADM 589	Project Management	
BADM 590	Seminar in Business Admin (Section OM)	
BADM 590	Seminar in Business Admin (Section SS)	
Total Hours		12

EP Documentation

DMI Documentation

Banner/Codebook Name

Supply Chain Management

Program Code:

5470

Conc Code

5470

Program Reviewer Comments

Deb Forgacs (dforgacs) (Thu, 11 Mar 2021 21:20:46 GMT):Rollback: proposal title.

Cele Otnes (cotnes) (Fri, 12 Mar 2021 15:42:21 GMT):Rollback: Lorena – same reason as before. Thanks.

Allison McKinney (agrindly) (Wed, 24 Mar 2021 15:41:22 GMT):Administratively approved by the Graduate College.

Kathy Martensen (kmartens) (Wed, 24 Mar 2021 23:47:25 GMT):Administrative approval: No change to total hours required, does not restrict student options.

Key: 852

Current		Proposed	
BADM 566	Supply Chain Management	BADM 566	Supply Chain Management
BADM 567	Process Management	BADM 567	Process Management
Select from the following		Select from the foll	owing
		BADM 564	Business Process Improvement
		BADM 565	Strategic Sourcing
		BADM 575	Supply Chain Analytics
BADM 589	Project Management	BADM 589	Project Management
BADM 590	Seminar in BA (Section SS)		
BADM 590	Seminar in BA (Section OM)		
BADM 568	Planning and Control Systems		

5500: BUSINESS DATA ANALYTICS - FLOATING

Completed Workflow

- 1. U Program Review (dforgacs@illinois.edu; eastuby@illinois.edu; aledward@illinois.edu)
- 2. 1902 Committee Chair (mwolter@illinois.edu; jloew@illinois.edu; bfulton@illinois.edu)
- 3. 1902 Head (cotnes@illinois.edu)
- 4. KM Grad Committee Chair (jloew@illinois.edu; wbe@illinois.edu)
- 5. KM Committee Chair (josephm@illinois.edu)
- 6. KM Dean (peecher@illinois.edu; mlschltz@illinois.edu)
- 7. University Librarian (jpwilkin@illinois.edu)
- 8. Grad_College (agrindly@illinois.edu; jch@illinois.edu; lowry@illinois.edu)
- 9. Provost (kmartens@illinois.edu)
- 10. Senate EPC (bjlehman@illinois.edu; moorhouz@illinois.edu; kmartens@illinois.edu)
- 11. Senate (jtempel@illinois.edu)
- 12. U Senate Conf (none)
- 13. DMI (eastuby@illinois.edu; aledward@illinois.edu; dforgacs@illinois.edu)

Approval Path

- 1. Wed, 25 Mar 2020 21:43:49 GMT
 - Deb Forgacs (dforgacs): Approved for U Program Review
- 2. Wed, 25 Mar 2020 21:45:08 GMT
 - Jeffrey Loewenstein (jloew): Approved for 1902 Committee Chair
- 3. Wed, 25 Mar 2020 22:08:13 GMT
 - Cele Otnes (cotnes): Approved for 1902 Head
- 4. Wed, 25 Mar 2020 22:11:47 GMT
 - Jeffrey Loewenstein (jloew): Approved for KM Grad Committee Chair
- 5. Wed, 25 Mar 2020 22:15:15 GMT
 - Michael Dyer (dyer1): Approved for KM Committee Chair
- 6. Wed, 25 Mar 2020 22:18:50 GMT
 - Mark Peecher (peecher): Approved for KM Dean
- 7. Wed, 25 Mar 2020 22:29:19 GMT
 - John Wilkin (jpwilkin): Approved for University Librarian
- 8. Fri, 27 Mar 2020 19:58:36 GMT
 - Allison McKinney (agrindly): Approved for Grad_College
- 9. Fri, 27 Mar 2020 20:22:44 GMT
 - Kathy Martensen (kmartens): Approved for Provost
- 10. Tue, 31 Mar 2020 16:23:14 GMT
 - Barbara Lehman (bjlehman): Approved for Senate EPC
- 11. Tue, 21 Apr 2020 19:07:43 GMT
 - Jennifer Roether (jtempel): Approved for Senate
- 12. Fri, 01 May 2020 20:37:25 GMT
 - Kathy Martensen (kmartens): Approved for U Senate Conf
- 13. Fri, 12 Jun 2020 16:27:14 GMT
 - Emily Stuby (eastuby): Approved for DMI

History

- 1. Aug 7, 2019 by Deb Forgacs (dforgacs)
- 2. Jun 12, 2020 by Lorena Nicholas (Iorenan)

Date Submitted: Tue, 16 Mar 2021 14:11:22 GMT

Viewing:5500: Business Data Analytics - Floating

Changes proposed by: Lorena Nicholas

Proposal Type Proposal Type: Concentration (ex. Dietetics) This proposal is for a: Revision Proposal Title: If this proposal is one piece of a multi-element change please include the other impacted programs here.example: A BS revision with multiple concentration revisions Administrative approval: We are proposing a change to the required courses for the Business Data Analytics concentration. The proposed new required courses are the three required courses for MS Business Analytics program - this change will provide consistency for students pursuing the concentration option and those pursuing the full degree. **EP Control Number** EP.21.100 Official Program Name **Business Data Analytics - Floating Effective Catalog Term** Fall 2021 **Sponsor College** Gies College of Business **Sponsor Department Business Administration Sponsor Name** Jeffrey Loewenstein, Associate Dean of Graduate Education

College Contact

Sponsor Email jloew@illinois.edu

Lorena Nicholas

College Contact Email

lorenan@illinois.edu

Program Description and Justification

Justification for proposal change:

Since the approval of the MS Business Analytics program, faculty have made extensive efforts to enhance and interrelate the three foundational courses for the program, BADM 554, FIN 510, and BDI 513. Given all the investments in these courses being made now and committed to for the future, making this set of three foundational courses not only the starting point for the MS Business Analytics degree but also the analytics concentration for those in other MS programs allows more students to benefit from these course improvements and strengthened foundation. It allows the concentration to be a college offering, consistent with college-wide engagement with analytics. Committing to these courses enables us to offer sections of all three courses fall and spring semester, improving course planning for students. It brings greater clarity as to what the foundational courses are and what the concentration means in terms of student understanding and skill development.

This change will reduce student flexibility for attaining the concentration. We do intend to continue offering nearly all of the currently listed courses as elective options, so this change is not eliminating a collection of courses students might take. Instead, faculty have revisited the courses and adjusted their content based on what they think is foundational and what they think are extensions. The change is to make the foundational courses the concentration and reserve the others as extensions. Focusing the concentration on the three courses will also make it easier for students to complete the concentration because each course will be offered more frequently. It will also provide greater clarity on what the concentration is and provides.

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		program	IIIICIG	1301	Jiiiiui	y -

No

Corresponding Program(s):

Corresponding Program(s)

Business Administration, MBA (Full-Time)

Business Administration, MBA (part-time)

Business Administration, MS

Management, MS (on-campus online)

Technology Management, MS

Academic Level

Graduate

Additional concentration notes (e.g., estimated enrollment, advising plans, etc.)

This proposed change will allow the students more flexibility in selecting courses to meet the requirements of the Business Data Analytics concentration.

Is This a Teacher Certification Program?

No

Will specialized accreditation be sought for this program?

No

Enrollment

No

Describe how this revision will impact enrollment and degrees awarded.
We anticipate the same number of students earning this concentration.
What is the typical time to completion of this program?
one academic year
What are the minimum Total Credit Hours required for this program?
36
Delivery Method
Is this program available on campus and online?
No
This program is available:
On Campus
Doublest
Budget
Are there budgetary implications for this revision?
No
NO .
Will the program or revision require staffing (faculty, advisors, etc.) beyond what is currently available?
No
Additional Budget Information
There are no additional budgetary needs for making these changes to the concentration.
Resource Implications
Facilities
Will the program require new or additional facilities or significant improvements to already existing facilities?

Technology
Will the program need additional technology beyond what is currently available for the unit? No
Non-Technical Resources
Will the program require additional supplies, services or equipment (non-technical)? No
Resources
For each of these items, be sure to include in the response if the proposed new program or change will result in replacement of another program(s). If so, which program(s), what is the anticipated impact on faculty, students, and instructional resources? Please attach any letters of support/acknowledgement from faculty, students, and/or other impacted units as appropriate.
Faculty Resources
Please address the impact on faculty resources including any changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc. Describe how the unit will support student advising, including job placement and/or admission to advanced studies.
There should be no impact on teaching load for faculty, these courses are already offered as electives for graduate programs in the College.
Library Resources
Describe your proposal's impact on the University Library's resources, collections, and services. If necessary please consult with the appropriate disciplinary specialist within the University Library.
There should be no impact on library resources from making these changes to the concentration.
Instructional Resources
Will there be any reduction in other course offerings, programs or concentrations by your department as a result of this new program/proposed change?
No
Does the program include other courses/subjects impacted by the creation/revision of this program? No

Financial Resources

How does the unit intend to financially support this proposal?

The classes are already offered and supported by existing faculty; advising is also already supported by staff in the graduate programs office.

Will the unit need to seek campus or other external resources?

No

Is this program requesting self-supporting status?

No

Program Regulation and Assessment

Briefly describe the plan to assess and improve student learning, including the program's learning objectives; when, how, and where these learning objectives will be assessed; what metrics will be used to signify student's achievement of the stated learning objectives; and the process to ensure assessment results are used to improve student learning. (Describe how the program is aligned with or meets licensure, certification, and/or entitlement requirements, if applicable).

The courses for this concentration will be reviewed as part of the overall graduate programs annual review of learning outcomes and AACSB reporting.

Is the career/profession for graduates of this program regulated by the State of Illinois?

No

Program of Study

"Baccalaureate degree requires at least 120 semester credit hours or 180 quarter credit hours and at least 40 semester credit hours (60 quarter credit hours) in upper division courses" (source: https://www.ibhe.org/assets/files/PrivateAdminRules2017.pdf). For proposals for new bachelor's degrees, if this minimum is not explicitly met by specifically-required 300- and/or 400-level courses, please provide information on how the upper-division hours requirement will be satisfied.

All proposals must attach the new or revised version of the Academic Catalog program of study entry. Contact your college office if you have questions.

Revised programs

BDA Concentration Proposed changes for program of study.docx Side by Side Business Data Analytics.docx BDA Concentration side by side March 1.xlsx

Attach a side-by-side comparison with the existing program AND, if the revision references or adds "chose-from" lists of courses students can select from to fulfill requirements, a listing of these courses, including the course rubric, number, title, and number of credit hours.

Catalog Page Text

Catalog Page Text: Description of program for the catalog page. This is not official content, it is used to help build the catalog pages for the program. Can be edited in the catalog by the college or department.

Business Data Analytics Concentration

for the Graduate Concentration in Business Data Analytics

The concentration in Business Data Analytics is designed to develop managers who understand how to leverage data to innovate and make decisions.

The concentration is open to students enrolled in

Management, MS,

Technology Management, MS,

Business Administration, MS

Business Administration, MBA (full-time)

Business Administration, MBA (part-time)

This concentration requires twelve graduate hours of Business Data Analytics coursework. Successful completion of the concentration assumes certain knowledge of business and prior coursework.

Admission to the concentration requires a Graduate Student Request Form submitted to the Department and Graduate College and enrollment in a Gies College of Business graduate program or other graduate approved for the concentration. Admission is limited, and acceptance is considered based on a student's academic standing and space availability.

Statement for Programs of Study Catalog

Code	Title	Hours
Business Data Analytics Courses		12
Choose 12 hours from:		
BADM 554	Enterprise Database Management	4
BADM 557	Business Intelligence	
BADM 562	Social Media Strategy	
BADM 571	Digital Business & IT Strategy	
BADM 573	Decision Analytics	
BADM 575	Supply Chain Analytics	
BADM 577	Predictive Data Analytics	
Course substitutions may be approv	ed by the Department of Business Administration.	
FIN 510	Big Data Analytics in Finance for Predictive and Causal Analysis	4
BDI 513	Data Storytelling	4

Other Requirements

Requirement	Description
Minimum 500-level Hours Required Overall	4
Minimum GPA	2.75

EP Documentation

DMI Documentation

Banner/Codebook Name

Business Data Analytics

Program Code:

5500

Conc Code

5500

Program Reviewer Comments

Deb Forgacs (dforgacs) (Thu, 11 Mar 2021 21:26:29 GMT):Rollback: proposal title

Cele Otnes (cotnes) (Fri, 12 Mar 2021 15:42:40 GMT):Rollback: Lorena: Same reason as before. Thanks.

Allison McKinney (agrindly) (Wed, 24 Mar 2021 15:41:32 GMT):Administratively approved by the Graduate College.

Kathy Martensen (kmartens) (Wed, 24 Mar 2021 23:48:17 GMT):Administrative approval: No change to total hours required, does not restrict student options.

Key: 785

Current		Proposed		
BADM 554	Enterprise Database Management	BADM 554	Enterprise Database Management	
BADM 557	Dec Support & Knowledge Mgt			
BADM 562	Social Media Strategy			
BADM 571	Digital Business & IT Strategy			
BADM 573	Decision Analytics			
BADM 575	Supply Chain Analytics			
BADM 577	Predictive Data Analytics			
		FIN 510	Big Data Analytics	
		BDI 513	Data Storytelling	

Proposal: Business Data Analytics Concentration (EP 20.146.)

Proposed Changes and Justification:

We are proposing to update the list of classes offered to meet the concentration requirements and increase flexibility for students in how they attain the concentration. Students will still need to complete 12 credit hours and the courses must still be approved by the Business Administration Department.

The current Business Data Analytics Concentration requires students to enroll in one course in each of three areas of analytics (Customer, Operation and Supply Chain, and Information Systems). The approach to dividing classes into three areas has been confusing and restrictive for students pursing this concentration. It is also limiting now that we have analytics classes in other areas beyond these three. Thus, we are proposing to eliminate the areas and just offer a list of approved courses for earning this concentration.

Current vs. Proposed Comparison

Current Concentration	Proposed Concentration (changes in bold)
This concentration is optional for these	This concentration is optional for these
programs:	programs:
Business Administration, MBA	Business Administration, MBA
Business Administration, MS	Business Administration, MS
Technology Management, MS	Technology Management, MS
	Management, MS
The concentration in Business Data Analytics is	The concentration in Business Data Analytics is
designed to develop leaders in various business	designed to develop managers who understand
fields who understand (1) how to leverage data	how to leverage data to innovate and make
to identify new customer segments and market;	decisions.
(2) how to optimize the supply chain and	
logistics; and (3) how to collect, manipulate, and	
visualize data for business decisions. The	
concentration will develop skills using data as a	
foundation for sound decision making in	
business.	
This concentration requires twelve graduate	This concentration requires twelve graduate
hours of Business Data Analytics related	hours of Business Data Analytics coursework.
coursework and completion of an analytics-	Successful completion of the concentration
related project in their Practicum or an	assumes certain knowledge of business and prior
equivalent course. Successful completion of the	coursework. Admission to the concentration
concentration assumes certain knowledge of	requires a Graduate Student Request Form
business and prior coursework.	submitted to the Department and Graduate
	College and admission to one of the programs
	approved for the concentration. Admission is
	limited, and acceptance is considered based on a
	student's academic standing and space
Descripted houses 12	availability.
Required hours: 12	Required hours: 12

Commented [LJ1]: I don't understand this part. I must be missing something!

Program of Study

Current

Code	Title	Hours		
Select four h	12			
1. Customer				
BADM 590 C	Consumer Analytics			
BADM 590 S	ocial Media Analytics			
2. Operation	and Supply Chain			
BADM 590 Predictive Data Analytics				
BADM 590 Business Process Improvement				
3. Information	3. Information Systems			
BADM 554	Enterprise Database Management			
BADM 557	Dec Support and Knowledge Mgt			
BADM 590	Data and Visual Analytics			
In addition, students pursuing this concentration will be required to select an analytics-related project in their Practicum or an equivalent course.				

Proposed

Code	Title	Hours
Chose any combination	n of courses below that total 12 hours	12
BADM 554 Enterprise	Database Management	
BADM 557 Decision Su	pport and Knowledge Management	
BADM 562 Social Med	ia Strategy	
BADM 571 Digital Busi	ness and IT Strategy	
BADM 573 Decision Ar	nalytics	
BADM 575 Supply Cha	in Analytics	
BADM 577 Predictive I	Data Analytics	

Course substitutions may be approved by the Department of Business Administration.

Current		Proposed	
Code - Title	Hours	Code Title	Hours
Select four hours of course work from each of the three areas below:	12	Chose any combination of courses below that total 12 hours	12
1. Customer		BADM 554 Enterprise Database Management	
BADM 590 Consumer Analytics		BADM 557 Decision Support and Knowledge Management	
BADM 590 Social Media Analytics		BADM 562 Social Media Strategy	
2. Operation and Supply Chain		BADM 571 Digital Business and IT Strategy	
BADM 590 Predictive Data Analytics		BADM 573 Decision Analytics	
BADM 590 Business Process Improvement		BADM 575 Supply Chain Analytics	
3. Information Systems		BADM 577 Predictive Data Analytics	
BADM 554 Enterprise Database Management		Course substitutions may be approved by the Department of Business Administration.	
BADM 557 Dec Support and Knowledge Mgt			
BADM 590 Data and Visual Analytics			
In addition, students pursuing this concentration will be			
required to select an analytics-related project in their Practicum or an equivalent course.			
riacticum of an equivalent course.			