May 14, 2015

MEMORANDUM

TO:       Darryll Pines
          Dean, A. James Clark School of Engineering

FROM:    Elizabeth Beise
          Associate Provost for Academic Planning and Programs

SUBJECT: Proposal to Modify the College Requirements for all Clark School of Engineering Bachelor Programs (PCC log no. 14034)

At its meeting on March 11, 2015, the Senate Committee on Programs, Curricula, and Courses (PCC) approved your proposal to modify the college requirements for all Clark School of Engineering Bachelor Programs. A copy of the approved proposal is attached.

The change is effective Fall 2015. Please ensure that the change is fully described in the Undergraduate Catalog and in all relevant descriptive materials, including the undergraduate program’s four-year plan (contact Lisa Kiely at lkiely@umd.edu for more information).

MDC/

Enclosure

cc:     Gregory Miller, Chair, Senate PCC Committee
        Barbara Gill, Office of Student Financial Aid
        Reka Montfort, University Senate
        Erin Taylor, Division of Information Technology
        Pam Phillips, Institutional Research, Planning & Assessment
        Anne Turkos, University Archives
        Linda Yokoi, Office of the Registrar
        Cynthia Stevens, Undergraduate Studies
        William Fourney, A. James Clark School of Engineering
The Office of Undergraduate Advising & Academic Support is proposing a minor change to all Bachelor of Science degrees offered by the Clark School of Engineering beginning in the fall 2015. This modification should apply to all undergraduate majors within the Clark School: (09020) Aerospace, (0903Z) Bioengineering, (09060) Chemical, (09080) Civil, (09991) Computer, (09090) Electrical, (0999A) Fire Protection, (09150) Materials Science, (09100) Mechanical, (0910P Mechanical – Patuxent River /SMHEC), and (0910F) Mechanical Collaborative FSU program.

The modification would allow students another method of satisfying the degree requirement of CHEM 135 - General Chemistry for Engineers. In short, students who matriculate as engineering students with prior credit for CHEM 131 would complete a new course called CHEM 134 - Chemical Principles for Engineering. This newly developed nonstandard, 1-credit, blended-learning course covers the content missing from CHEM 131 which is found in CHEM 135. The new CHEM 134 course in conjunction with CHEM 131, equates to the content covered CHEM 135. Therefore, we are requesting first year engineering students with previous credit for CHEM 131 (earned by AP, IB, dual enrollment, Class A level exams, or transfer work) be allowed to take CHEM 134 and satisfy the chemistry degree requirement; first year engineering students who matriculate into engineering without credit for CHEM 131 will continue to enroll in CHEM 135.

Department/Program Contact Person for Proposal:
**Background:** Prior to the fall of 2006 Chemistry 135: General Chemistry for Engineers used to be restricted to engineering students. In the fall of 2006 the Department of Chemistry and Biochemistry proposed increasing the seats in CHEM 135 and removing the restriction. This allowed any student who satisfied the pre-requisite to enroll in the course. While engineering supported this idea, nine years later we could not have anticipated the unprecedented growth within our college. Currently, the Clark School admits a freshmen class of 700 students while our current undergraduate enrollment is approximately four thousand students. While this has had a direct impact on the number of students enrolling in CHEM 135, the number of students admitted to the University, but not to engineering, who desire admission to the Clark School has increased significantly impacting enrollment in this course.

The A. James Clark School (AJC) is requesting all Bachelor of Science degrees offered by the Clark School of Engineering be modified to allow the substitution of CHEM 131- General Chemistry I (3) credits, and CHEM 134- Chemical Principles for Engineering (1) credit both with a grade of C- or better to substitute for the degree requirement of CHEM 135- General Chemistry for Engineers (3) credits.

This modification should apply to all undergraduate engineering programs effective fall 2015 within the Clark School: (09020) Aerospace, (0903Z) Bioengineering, (09060) Chemical,(09080) Civil, (09991) Computer, (09090) Electrical, (0999A) Fire Protection, (09150) Materials Science, (09100) Mechanical, (0910P Mechanical - Patuxent River /SMHEC), and (0910F) Mechanical Collaborative FSU program.

This option would allow engineering students another way of satisfying the degree requirement of CHEM 135 - General Chemistry for Engineers. In short, students who matriculate as engineering students with prior credit for CHEM 131 would complete a new course called CHEM 134 - Chemical Principles for Engineering. This newly developed nonstandard, 1-credit, blended-learning course covers the content missing from CHEM 131 which is found in CHEM 135.

**Current (old) Requirements:** All engineering students must complete CHEM 135, unless they satisfy the requirement with Advanced Placement, International Baccalaureate credit, Class A level exams, dual enrollment, or transfer credit.

**Proposed (new) Requirements:** Students who matriculate as engineering students with prior credit for CHEM 131 would complete a new course called CHEM 134 - Chemical Principles for Engineering.

**Rationale:** The Associate Dean and an Undergraduate Committee made up of faculty members from various engineering departments undertook the process of determining the current state of CHEM 135 as well as the impact to our students. Engineering supports this proposal as it will decrease the size of Chem 135, improve student satisfaction in CHEM 135, and reduce the credit load for first semester engineering students.

The lecture hall for CHEM 135 is at capacity and exceeds 300 students. Engineering faculty and staff agree 300+ students in a first semester lecture course can hinder learning. Couple this with the fact that chemistry 135 is a performance course of our 45 credit review it is in our best interest to reduce the enrollment of the course. To deliver effective instruction the Dept. of Chemistry and Biochemistry would like to address “the needs and strengths of a cohort that is more intellectually cohesive” by restricting CHEM 135 to engineers only. (Part D, Chemistry Proposal) All non-engineering students will enroll in CHEM 131 and then 134.

Currently, directly admitted freshmen who matriculate with credit for CHEM 131 must enroll in CHEM 135, despite credit only being granted for CHEM 131 or 135. Engineering would like to support this proposal and eliminate the overlap in content for students who have completed CHEM 131. This proposal would impact approximately 20% of our incoming freshmen class. Please see the Department of Chemistry and Biochemistry’s proposal for further justification.
Reducing the number of credits required for first semester engineering student would be beneficial. Currently, all incoming freshmen are restricted to a maximum of 17 credits their first semester due to the rigorous nature of the curriculum. Considering over 80% of our incoming students participate in various campus programs such as the University Honors Programs, College Park Scholars, Civicus, Flexus/Virtus, etc. the reduced course load for students who enter with CHEM 131 credit will help them stay on track as these programs have additional academic requirements.

Please see the following proposal submitted by the Department of Chemistry and Biochemistry. (The proposal is in italics - permission was obtain to submit this as part of the PCC proposal)

Proposal for General Chemistry for Engineers Course Redesign:
Expanded Tracks to Accommodate Student Preparation
Daniel Falvey* and Janice E. Reutt-Robey
Dept. of Chemistry & Biochemistry, University of Maryland, College Park
Contact information: *falvey@umd.edu  ^rrobey@umd.edu

A. Summary

The Department of Chemistry and Biochemistry proposes to develop and offer a 1-credit blended-learning course entitled “Chemical Principles for Engineering.” (CHEM 134) This course is intended for 1st year students in the Clark School of Engineering and will help fulfill the introductory chemistry requirements for Engineering. The prerequisite for this course will be CHEM 131 (Chemistry I: Fundamentals of General Chemistry, 3 credits) or its equivalent, including Chemistry Advanced Placement (AP) Exam score of 4 or greater. The content of this course will include all material that is currently offered in CHEM 135 (General Chemistry for Engineers – 3 credits) that is NOT included in CHEM 131. Thus students completing the combination of CHEM 131 + CHEM 134 will master the same material at the same level as students who complete CHEM 135. The addition of this course will benefit engineering students who have chemistry AP credit, undecided freshmen who take CHEM 131 and then decide to major in engineering, and transfer students who have earned CHEM 131 credit at other institutions.

B. Background

1. Current Lower Division Chemistry Sequence:
The Department currently offers two introductory chemistry lecture courses. CHEM 131 (Chemistry I: Fundamentals of General Chemistry) is a standard introductory college chemistry course. Courses very similar to CHEM 131 in content are offered at virtually every university and community college in the nation. The vast majority of the students who complete this course go on to take organic chemistry as well as CHEM 271/272: (General Chemistry and Energetics). This sequence helps fulfill requirements in Chemistry, Biochemistry, Biological Sciences, and numerous other majors or options in AGNR, SPHL, and BSOS. This is also the recommended chemistry sequence for students interested in the health professions.

CHEM 135 (General Chemistry for Engineers) is an accelerated course that is intended to fulfill the introductory chemistry requirement for all undergraduates in the Clark School of Engineering. Approximately 1200 students/year take this course, including students who have been admitted into the Clark School of Engineering (700/year) but also undecided students who have an interest in engineering (ca. 500/year). CHEM 135 covers all of the material presented in CHEM 131 and additionally includes selected material from CHEM 271, including an introduction to organic and polymer chemistry, electrochemistry, kinetics and gas laws.

2. Deficiencies of the Current Sequence
a. Repetition of Content. Because of the additional content and accelerated nature of CHEM 135, CHEM 131 cannot be used to fulfill the chemistry requirements for engineering. Thus, any student who has completed CHEM 131 and switches into engineering is required to take CHEM 135, repeating much of the content already mastered in CHEM 131. Similarly, transfer students coming into Engineering who have CHEM 131 credit from their previous institution are also required to take CHEM 135, forcing them to revisit already mastered material. Courses equivalent to CHEM 131 are ubiquitous, but CHEM 135 equivalents at other institutions are rare. Engineering students with Chemistry AP scores of 4 are awarded credit for CHEM 131, but not 135, and are likewise required to repeat previously mastered material. In all, ca. 14% of the students currently taking CHEM 135 already have CHEM 131 credit.

b. Non-Engineering Students in CHEM 135. Because CHEM 131 is effectively a “dead end” for students who enter the Clark School of Engineering, undecided freshmen who express even a mild interest in engineering are pushed into CHEM 135. Approximately 500 students/year or 40% of CHEM 135 is populated by students from Colleges other than Engineering, mainly Letters and Sciences. Unfortunately many of these students are unprepared for an accelerated course. The additional content in CHEM 135 means that there is little time to review basic algebra or provide context and motivation for the various topics. Students with weak math skills or who have not had an excellent high school chemistry course fare poorly in CHEM 135. As a consequence, while it varies slightly from term to term, the historic (last 4 years) DWF rate for CHEM 135 is in the 20-25% range, among the highest of all courses offered by our department.

c. Low student and faculty satisfaction with CHEM 135. Student evaluations for CHEM 135 are typically the lowest of all of the courses offered by our department. We attribute this largely to the intellectual heterogeneity of the student population in the course. Approximately 14% have had CHEM 131 or equivalent credit and are being forced to repeat content that they have already mastered. On the other hand, ca. 40% of the class are students who have not been admitted into the Clark School of Engineering; these students are generally underprepared for such a fast-paced class. Course instructors repeatedly complain about the difficulties of engaging students who are repeating ca. 2/3 of previously mastered content, and simultaneously reaching out to underprepared non-engineering admits who are often overwhelmed by the fast pace and the lack of time to reinforce the necessary mathematical skills. Often the instructor’s efforts end up pleasing no one. For example in one poorly rated section, student comments included complaints that the course was too elementary: “Have already taken AP Chemistry and knew much of the material prior. Only the final section of the course required effort,” but also complaints that the course moved too quickly: “There was too much material crammed into too little time for students to get a thorough understanding of it.”

C. Proposed Solution

(I) Create CHEM 134: Chemical Principles for Engineering. (1 credit, prerequisite CHEM 131 or equivalent) This course will cover all of the content in CHEM 135 that is not already covered in CHEM 131. This includes: chemical kinetics, electrochemistry, introductory organic chemistry, and gas laws and phase changes. This course will provide a pathway on which students who have CHEM 131 credit can fulfill Engineering requirements without having to revisit previously mastered material. Moreover, the availability of a CHEM 131 + CHEM 134 pathway will allow undecided students the ability to take a standard introductory chemistry course (CHEM 131). Those who get admitted into the Clark School can get on track by taking CHEM 134. Those who do not can use CHEM 131 credit to fulfill requirements for a variety of majors in CMNS, SPHL, AGNR and BSOS.

The detailed content and formats of CHEM 134 will be determined by a joint Engineering and Chemistry working group. (Associate Dean Bill Fourney is currently appointing representatives from the College of Engineering). Broadly speaking the content will include the following:

1. Gas laws (Chapter 5)
2. Intermolecular Interactions (Ch. 11)
3. Chemical Kinetics (Ch. 13)
4. Intro to Organic/Polymer Chem (Ch. 20)
5. Electrochemistry (Ch. 18)

Here the chapters refer to the current CHEM 135/131 textbook (Tro, “Chemistry: A Molecular Approach, 2nd Ed., Pearson). All introductory chemistry texts have similar coverage at this level.

The fundamental concepts covered in CHEM 134 have changed little in the past three decades. Therefore this course is an excellent candidate for a blended learning format, wherein the topics are introduced via video lectures and the instructor’s efforts are focused on providing guidance in an active learning format. Specifically, students will watch lectures online and then meet in person 1 hr/week for an interactive review group problem solving tutorial. The instructor will present problems for the students to solve in groups and then help guide them to the correct solutions. Assessment would be based on online homework, an in-person midterm and an in-person final exam.

(2) Restrict CHEM 135 to Students admitted to the Clark School of Engineering. Historically, CHEM 135 had this restriction, and students preparing to transfer into engineering fulfilled the requirements by taking two semesters of the standard introductory sequence. However, the adoption of the 1-2-1 general-organic-general introductory chemistry sequence compelled the department to open CHEM 135 to all students. Unfortunately, many of these students are ill-prepared for such an accelerated course, and in fact many of them do not ultimately pursue engineering degrees. On the whole, this group of students would be better served by taking a standard introductory course. The addition of 134 will allow us to restrict enrollment in Chemistry 135 to Engineering students. This should make it possible for us to make the course material more challenging and interesting for this talented group.

(3) Change the Corequisite for CHEM 136 (lab) to include CHEM 134. Most of the students in CHEM 135 do not take the associated lab course (CHEM 136). However for those that do, we would need to change the formal co-requisite for the lab course. For the most part the content of the CHEM 136 lab is not tightly synchronized with the lecture material. The experiments involving electrochemistry and kinetics are offered near the end of the semester to ensure that the CHEM 135 students would have covered them in the lecture prior to doing the experiments.

(4) Rename CHEM 135 to “Accelerated General Chemistry for Engineering” With the addition of CHEM 134, we will have several versions of “General Chemistry.” This name change is meant to clarify the differences between the courses.

D. Anticipated Impacts

1. Reduced enrollment in CHEM 135. By restricting the course to students admitted to the Clark School of Engineering, the number of CHEM 135 lecture sections will be reduced from 5/year to 3/year. This should become apparent when the course is offered on large-scale. We will track and report enrollments starting in that semester and over the next 2 years.

2. Increased enrollment in CHEM 131. If Letters and Science majors are directed to take CHEM 131 we anticipate an increase of 2 sections/year (from 7 to 9). This will be monitored and reported in the same way proposed for impact 1, above.

3. CHEM 134 will enroll between 300 to 600 students/year. The upper limit assumes that ALL undecided majors who enroll in CHEM 131 will pass the class with a C- or better and proceed into CHEM 134 without losing interest in Engineering. However given that the DWF rate in CHEM 131 is ca. 18% the numbers are likely to be significantly smaller than that. If enrollment in CHEM 134 is contingent on
admission into the Clark School of Engineering, then annual enrollment in CHEM 134 would be correspondingly lower. We will track and report the enrollment in the new course.

4. **Reduced course loads for engineering students with CHEM 131 credit.** Those students with chemistry AP 4 or CHEM 131 transfer credit (ca. 170/year) will see their requirements drop by 2 credit hours, freeing them up to take electives or other advanced course work. This is expected to improve average time to degree. While the average time to degree for Engineering is determined by factors beyond the chemistry requirement, it is reasonable to anticipate a modest improvement for the engineering cohort that enters in the Fall of 2014 due to the fraction that have a reduced load. Thus we will track and report the average time to degree starting in spring 2018.

5. **Improved student satisfaction in CHEM 135.** By focusing on students who need all of the CHEM 135 content and who are qualified and committed to engineering, it will be possible to offer more effective instruction calibrated to the needs and strengths of a cohort that is more intellectually cohesive than the current CHEM 135 population. Once the course enrollment is restricted we will compare student responses to the standard course evaluation questions: “The course was intellectually challenging.” And “I learned a lot from this course” to responses received prior to enrollment restriction. We anticipate that they will meet or exceed the College Comparison mean for courses at the 100-level.

6. **Reduced DWF Rate in CHEM 135.** Currently the DWF rate varies from 20-25%. Once the enrollment in CHEM 135 is restricted to Engineering admits (projected for the fall of 2015) we anticipate the DWF rate will drop to below 10%. We will track the CHEM135 and CHEM 134 DWF rates.

Additional documentation has been attached to help address any concerns.

**Attachment A:** Sample Four Year plans have been included with the current degree requirements as well as the proposed degree requirements.

**Attachment B:** Letters of support from each of our eight departmental chairs

**Attachment C:** Current and Proposed 45 credit review contract for directly admitted students

**Attachment D:** Proposed Limited Enrollment Program changes to gateway courses

While this proposal impacts directly admitted engineering students, the implications for adding a new chemistry course to a currently existing LEP program needs to be addressed by Undergraduate Studies. Engineering understands the final decision as to which course will be considered a ‘gateway’ will be governed by UGST in coordination with the college.

**Internal Transfers:** The Clark School would like to suggest that starting in the spring of 2016, engineering accepts CHEM 131 in combination with CHEM 134 for admission, but only list CHEM 134 as the ‘gateway’ or performance course. Students would have the option of completing CHEM 135, or CHEM 271, or the combination of CHEM 131 AND CHEM 134 with a minimum grade of C-.

CHEM 135, 271, and CHEM 134 will be considered gateway courses for the chemistry requirement.

CHEM 131 will not count as a gateway course, although it is needed for the degree.

Engineering will continue to ensure only one gateway or performance review course may be repeated to earn the required grade and that course may only be repeated once. When more than one course can satisfy a gateway requirement, taking a second course from the list will count as a repeat. See **Attachment D**.
UM’s LEP taskforce recommended, “that the gateways be limited to three courses that can be completed in two consecutive semesters.” (Fetter, 2014) This proposal should not increase the number of semesters needed for internal transfers to satisfy our admission criteria. Any student, outside of engineering, would need to complete CHEM 131 and 134. If students previously earned credit for CHEM 131, they would be able to complete CHEM 134 reducing the number of credits prior to applying to engineering. Considering the D/W/F rate of the non-engineering population in CHEM 135, it would appear to be in the best interest of the students to have them follow the newly proposed CHEM 131/CHEM 134 sequence.

**External Transfers:** Since CHEM 134 is a newly proposed course for the fall 2015, no other institution offers the equivalency. Once other institutions begin to offer CHEM 134, the same policy would apply to the gateways.

**Advising concerns/Transitional Issues:**

**Non-standard courses:** The Department of Chemistry’s proposal was shared with Letters & Sciences. Engineering brought up a concern regarding non-standard courses not having published deadlines in the schedule of classes. Since non-standard courses have a modified drop/add period the impact could be significant to the internal transfer population if CHEM 134 is approved as a gateway. Engineering recommends L & S obtain the CHEM 134 roster (from CMNS) at the beginning of each semester/term and notify students regarding the last day to drop the class with and without ‘W’.

**General Education:** Students need to be advised if they attempt CHEM 131 without enrolling in CHEM 132 (the co-requisite) they will not earn General Education credit for DNSL. This may become problematic if the student is not admitted to engineering.

**Attachment E:** Dependency Analysis - a list of all the courses which would require VPAC modification
Certain majors require a limit on the number of students they can accommodate and are designated Limited Enrollment Programs (LEP).

**Freshman Direct Admits:** All students accepted directly as freshman into the Clark School of Engineering must complete a series of gateway courses and a review at 45 credits. Gateway criteria include:

- Completion of MATH 141 (Calculus II) with a minimum grade of C-
- Completion of ENES 100 (Intro to Engineering Design) with a minimum grade of C-
- Completion of PHYS 161 (Physics I) with a minimum grade of C-
- Completion of CHEM 135 or CHEM 271 with a minimum grade of C-
- Bioengineering students must also complete BIOE 120 with a minimum grade of C-
- Students in other Engineering majors or Engineering undecided who wish to be a BIOE major must complete BIOE 120 with a grade of B-.

**A minimum grade point average of 2.0 in all courses is required at the 45 credit review.**

**Transfer Admission Requirements:** Students beyond their first semester and those off campus wishing to transfer are required to meet the following gateway criteria:

- Completion of MATH 141 (Calculus II) with a minimum grade of B-
- Completion of PHYS 161 (Physics I) with a minimum grade of B-
- Completion of CHEM 135, or CHEM 271, or the combination of CHEM 131 AND CHEM 134 with a minimum grade of C-. **CHEM 135, 271, and CHEM 134 will be considered a gateway courses for the chemistry requirement. CHEM 131 will not count as a gateway course although it is needed for the degree.**
- Bioengineering students must also complete BIOE 120 with a minimum grade of B-.

**A minimum grade point average of 3.0 in all courses taken at the University of Maryland and all other institutions is required for internal and external transfer students.**

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**PLEASE NOTE**
- Only one gateway or performance review course may be repeated to earn the required grade and that course may only be repeated once. When more than one course can satisfy a gateway requirement, taking a second course from the list will count as a repeat.
- Students may apply only once to an LEP. Students who are directly admitted and fail to meet the performance review criteria will be dismissed from the major and may not reapply.
- Students must maintain a minimum cumulative GPA of 2.00. Failure to do so will result in dismissal from the major.
- Any student denied admission or dismissed from the major may appeal in writing directly to the Associate Dean of the School.

Aerospace Engineering  
Bioengineering  
Chemical Engineering  
Civil Engineering  
Computer Engineering  
Electrical Engineering  
Fire Protection Engineering  
Materials Science  
Mechanical Engineering
Current 45 CREDIT REVIEW CONTRACT
A. James Clark School of Engineering, University of Maryland

In accordance with University policy, the A. James Clark School of Engineering has been designated a Limited Enrollment Program (LEP). This allows the School to establish gateway criteria that students must satisfy in order to continue study in an engineering major.

All newly admitted freshmen in the Clark School must complete the courses listed below by 45 University of Maryland credits. AP/IB/transfer credits are not calculated into the 45 credit total, but completion of a course through those means will be accepted for the review.

45 CREDIT REVIEW CRITERIA
Students admitted directly from high school (not transfer students) will be reviewed as follows:

- Completion of CHEM135 (Chemistry for Engineers) with a minimum grade of C-
- Completion of ENES100 (Intro to Engineering Design) with a minimum grade of C-
- Completion of MATH141 (Calculus II) with a minimum grade of C-
- Completion of PHYS161 (Physics I) with a minimum grade of C-
- Completion of ENGL101 (Academic Writing) Fundamental Studies English
- A MINIMUM CUMULATIVE GRADE POINT AVERAGE OF 2.0

Students can only repeat one gateway course from the list above to earn the required grade. A grade of ‘W’ (Withdrawal) in a course counts as an attempt. Therefore the next attempt at that course is considered a repeat, although no grade points or credits are earned for a ‘W’.

Failing Gateway Requirements
Students who fail the 45 credit review will be required to change to a major not in the Clark School and may not reapply to any engineering major. Students who must leave the Clark School may appeal in writing to the Associate Dean. Appeals require documentation of rare and extraordinary circumstances. All decisions from the Associate Dean are final.

Students can track their progress on Degree Navigator, an online student degree audit accessible via www.TESTUDO.umd.edu

My signature below confirms that I understand and agree to the terms of this contract.

Signature

Printed Name

Date

University ID #

Original: UA&AS Office  Copy: Student
Proposed 45 CREDIT REVIEW CONTRACT
A. James Clark School of Engineering, University of Maryland

In accordance with University policy, the A. James Clark School of Engineering has been designated a Limited Enrollment Program (LEP). This allows the School to establish gateway criteria that students must satisfy in order to continue study in an engineering major.

All newly admitted freshmen in the Clark School must complete the courses listed below by 45 University of Maryland credits. AP/IB/transfer credits are not calculated into the 45 credit total, but completion of a course through those means will be accepted for the review.

45 CREDIT REVIEW CRITERIA
Students admitted directly from high school (not transfer students) will be reviewed as follows:

- Completion of CHEM135 (Chemistry for Engineers) with a minimum grade of C-
  OR completion of both CHEM 131 and CHEM 134 with a minimum grade of C-
- Completion of ENES100 (Intro to Engineering Design) with a minimum grade of C-
- Completion of MATH141 (Calculus II) with a minimum grade of C-
- Completion of PHYS161 (Physics I) with a minimum grade of C-
- Completion of ENGL101 (Academic Writing) Fundamental Studies English
- A MINIMUM CUMULATIVE GRADE POINT AVERAGE OF 2.0

Students can only repeat one gateway course from the list above to earn the required grade. A grade of 'W' (Withdrawal) in a course counts as an attempt. Therefore the next attempt at that course is considered a repeat, although no grade points or credits are earned for a 'W'.

Failing Gateway Requirements
Students who fail the 45 credit review will be required to change to a major not in the Clark School and may not reapply to any engineering major. Students who must leave the Clark School may appeal in writing to the Associate Dean. Appeals require documentation of rare and extraordinary circumstances. All decisions from the Associate Dean are final.

Students can track their progress on Degree Navigator, an online student degree audit accessible via www.TESTUDIO.umd.edu

My signature below confirms that I understand and agree to the terms of this contract.

_____________________________  ______________________________
Signature                                                Printed Name

_____________________________  ______________________________
Date                                                University ID #

Original: UA&AS Office       Copy: Student