



Undergraduate Advising Manual

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Introduction

The Educational Objectives of our chemical engineering program are to prepare students for career and professional accomplishments after graduation, including:

- Successfully practicing as an engineer or in some other professional pursuit, including traditional or emerging fields of chemical engineering.
- Entering and successfully participating in a graduate or professional program that continues career development.

Our chemical engineering program prepares graduates to achieve these educational objectives through the development of their skills as outlined in our educational outcomes and taught in our curriculum. By the time of graduation, our students will attain the following educational outcomes:

- An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- An ability to apply the engineering design process to produce solutions that meet specified needs with consideration for public health and safety, and global, cultural, social, and environmental, economic, and other factors as appropriate to the discipline.
- An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions.
- An ability to communicate effectively with a range or audiences.
- 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.
- An ability to recognize the ongoing need to acquire new knowledge, to choose appropriate learning strategies, and to apply this knowledge.
- An ability to function effectively as a member or leader of a team that establishes goals, plans tasks, meets deadlines, and creates a collaborative and inclusive environment.

The purpose of this document is to outline the undergraduate program of study, including pre- and co-requisites, as well as the other requirements for graduation, to serve as an advising tool for students and faculty.

Programs of Study

Students select their program of study based on entry date and their choice of programs offered during their tenure at the university. For example, a student entering in Fall 2014 may elect to use the program appearing in the catalog in Fall 2014 (in its entirety) or any later revisions (also in their entirety) while the student is at the university. Chemical Engineering has a 128-hour degree program that was established in Fall 2013 and modified in Fall 2015. It is possible to use a previous 132-hour program of study if the student entered the university prior to Fall 2013. The Fall 2013 and Fall 2015 programs of study are shown as a listing of courses, course substitutions and as a course sequence diagram later in this document. This lesser used 132-hour program of study is shown as a listing of courses, course substitutions and as a course sequence diagram in the Appendix.

The College of Engineering has several **requirements and substitutions which may apply in all programs of study:**

- Engineering students entering the university in Fall 2012 or later may use only lower level humanities/social electives (one humanities course, one fine arts class, three social science classes including ECON 2143, Basic Economics, or ECON 2013, Macroeconomics) to complete the humanities/social elective requirements. The College of Engineering does not allow students to

use upper level humanities/social science electives as part of the degree program. However, upper level humanities/social science electives taken (or transferred) prior to Fall 2012 or approved (by appeal to the College of Engineering) during the Fall 2012 semester may be used.

- All Engineering students entering the College of Engineering as Freshmen must participate in the Freshman Engineering Program (FEP). FEP participation is waived for advanced transfer students, but GNEG 1111 and GNEG 1121 must then be replaced by 2 hours of STEM (science, technology, engineering or math) classes in the 128-hour program of study.

As was noted above, there are two 128-hour programs of study in Chemical Engineering, the Fall 2013 program and the Fall 2015 program. Since some of the courses in the Fall 2013 program no longer exist, participation in the 128-hour programs is governed by course offerings, as follows:

- If a student has completed CHEG 3143, Heat Transport, and CHEG 3153, Non-equilibrium Mass Transfer, prior to Fall 2015, the student will most likely follow the Fall 2013 program of study that contains these courses. CHEG 2123 (Introduction to Chemical Engineering II), CHEG 2212 (Chemical Engineering Lab I), CHEG 3143, CHEG 3153 and CHEG 3232 (Chemical Engineering Lab II) no longer exist in the chemical engineering curriculum—CHEG 2123 and CHEG 2212 have been completely eliminated, CHEG 3143 and CHEG 3153 have been combined to form CHEG 3144 (Heat and Mass Transfer), and CHEG 3232 has been expanded to form CHEG 3233 (the new Chemical Engineering Lab I).
- Conversely, if a student has not completed CHEG 3143 and CHEG 3153, the student will most likely be using the Fall 2015 program of study.
- Students who have completed courses from the Fall 2013 program that are no longer in the Fall 2015 program (such as CHEG 2123 and CHEG 2212) will be given technical elective credit for these courses. Consult your advisor for specific course substitutions.

The Fall 2013 suggested program of study containing CHEG 2123, CHEG 2212, CHEG 3143, CHEG 3153 and CHEG 3232 is shown as a listing of courses in Table 1 and as a course sequence diagram in Figure 1. Note that all courses are not offered each semester and that certain pre- and co-requisites are required for most courses.

Table 1. Fall 2013 (128-Hour) Suggested Program of Study

Fall—Year 1	Spring—Year 1
MATH 2554, Calculus I	MATH 2564, Calculus II
CHEM 1113, Engineering Chemistry I	CHEM 1133, Engineering Chemistry II
ENGL 1013, Composition I	CHEM 1131L, Engineering Chemistry II Lab
PHYS 2054, University Physics I	ENGL 1023, Composition II
<u>GNEG 1111</u> , Introduction to Engineering I	PHYS 2074, University Physics II
15 hours	<u>GNEG 1121</u> , Introduction to Engineering II
	16 hours
Fall—Year 2	Spring—Year 2
MATH 2574, Calculus III	MATH 2584, Differential Equations
CHEM 3603, Organic Chemistry I	CHEM 3613, Organic Chemistry II
CHEM 3601L, Organic Chemistry I Lab	CHEM 3611L, Organic Chemistry II Lab
CHEG 2113, Intro to Chemical Engineering I	CHEG 2123, Intro to Chemical Engineering II
CHEG 2212L, Chemical Engineering Lab I	CHEG 2133, Fluid Mechanics
<u>HIST 2003</u> , HIST 2013 or PLSC 2003	<u>CHEG 2313</u> , Thermodynamics of Single Comp
16 hours	17 hours

Fall—Year 3
 CHEM 3813, Intro to Biochemistry or CHEM 4813H,
 Honors Biochemistry I
 CHEG 3143, Heat Transport
 CHEG 3232L, Chemical Engineering Lab II
 CHEG 3323, Thermodynamics of Multicomp. Systems
 CHEG 3253, Computer Methods
 hours Humanities/Social Science Elective, 3 hours
 17 hours

Spring—Year 3
 CHEG 3713, Materials Technology
 CHEG 3333, Chemical Engr Reactor Design
 CHEG 3153, Non-equilibrium Mass Transfer
 ECON 2143, Basic Economics (ECON 2013
 may be substituted)
Humanities/Social Science Elective, 3
 15 hours

Fall—Year 4
 CHEG 4163, Equilibrium Stage Mass Transfer
 CHEG 4413, Chem Engr Design I
 CHEG 4813, Chemical Process Safety
 Technical or Advanced Science Elective, 3 hours
 Engineering
Advanced Science elective—3 hours
 15 hours

Spring—Year 4
 CHEG 4332, Chemical Engineering Lab III
 CHEG 4423, Auto Process Control
 CHEG 4443, Chem Engr Design II
 Advanced Science or Chemical
 elective—3 hours
 Humanities/Social Science Elective, 3 hours
Humanities/Social Science Elective, 3 hours
 17 hours

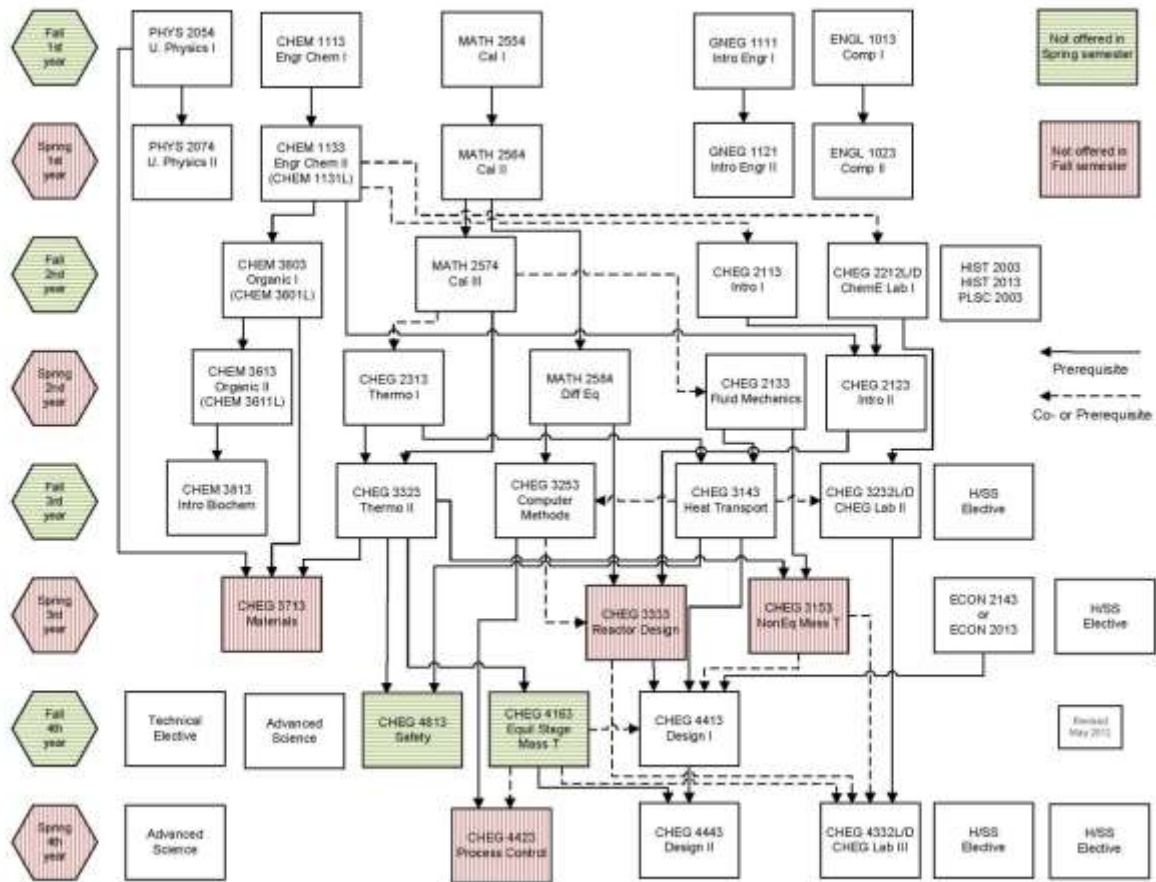


Figure 1. Fall 2013 (128-Hour) Suggested Program of Study

The Fall 2015 suggested program of study containing additional elective options as chemical engineering and technical electives is shown as a listing of courses in Table 2 and as a course sequence diagram in Figure 2. Once again, it should be noted that all of the courses are not offered each semester and that certain pre- and co-requisites are required for most courses.

Table 2. Fall 2015 (128-Hour) Suggested Program of Study

Fall—Year 1	Spring—Year 1
MATH 2554, Calculus I	MATH 2564, Calculus II
CHEM 1103, University Chemistry I	CHEM 1123, University Chemistry II
ENGL 1013, Composition I	CHEM 1121L, University Chemistry II Lab
PHYS 2054, University Physics I	ENGL 1023, Composition II
GNEG 1111, Introduction to Engineering I	PHYS 2074, University Physics II
15 hours	GNEG 1121, Introduction to Engineering II
	16 hours
Fall—Year 2	Spring—Year 2
MATH 2574, Calculus III	MATH 2584, Differential Equations
CHEM 3603, Organic Chemistry I	CHEM 3613, Organic Chemistry II
CHEM 3601L, Organic Chemistry I Lab	CHEM 3611L, Organic Chemistry II Lab
CHEG 2113, Intro to Chemical Engineering	CHEG 2133, Fluid Mechanics
Humanities/Social Science Elective, 3 hours	CHEG 2313, Thermodynamics of Single Comp
HIST 2003, HIST 2013 or PLSC 2003	Humanities/Social Science Elective, 3 hours
17 hours	17 hours
Fall—Year 3	Spring—Year 3
CHEM 3813, Intro to Biochemistry or	CHEG 3713, Materials Technology
CHEM 4813H, Honors Biochemistry I	CHEG 3333, Chemical Engr Reactor
Design	
CHEG 3144, Heat and Mass Transfer	CHEG 3253, Computer Methods
CHEG 3323, Thermodynamics of	CHEG 3233, CHEG Lab I (Junior Lab)
Multicomp. Systems	Humanities/Social Science Elective, 3 hours
ECON 2143, Basic Economics (ECON 2013	Technical Elective, 3 hours
may be substituted)	18 hours
Humanities/Social Science Elective, 3 hours	
16 hours	
Fall—Year 4	Spring—Year 4
CHEG 4163, Separation Processes	CHEG 4332, CHEG Lab II (Senior Lab)
CHEG 4413, Chem Engr Design I	CHEG 4423, Auto Process Control
CHEG 4813, Chemical Process Safety	CHEG 4443, Chem Engr Design II
Advanced Science Elective, 3 hours	CHEG elective, 3 hours
Technical elective, 3 hours	Advanced Science or Technical elective, 3 hours
15 hours	14 hours

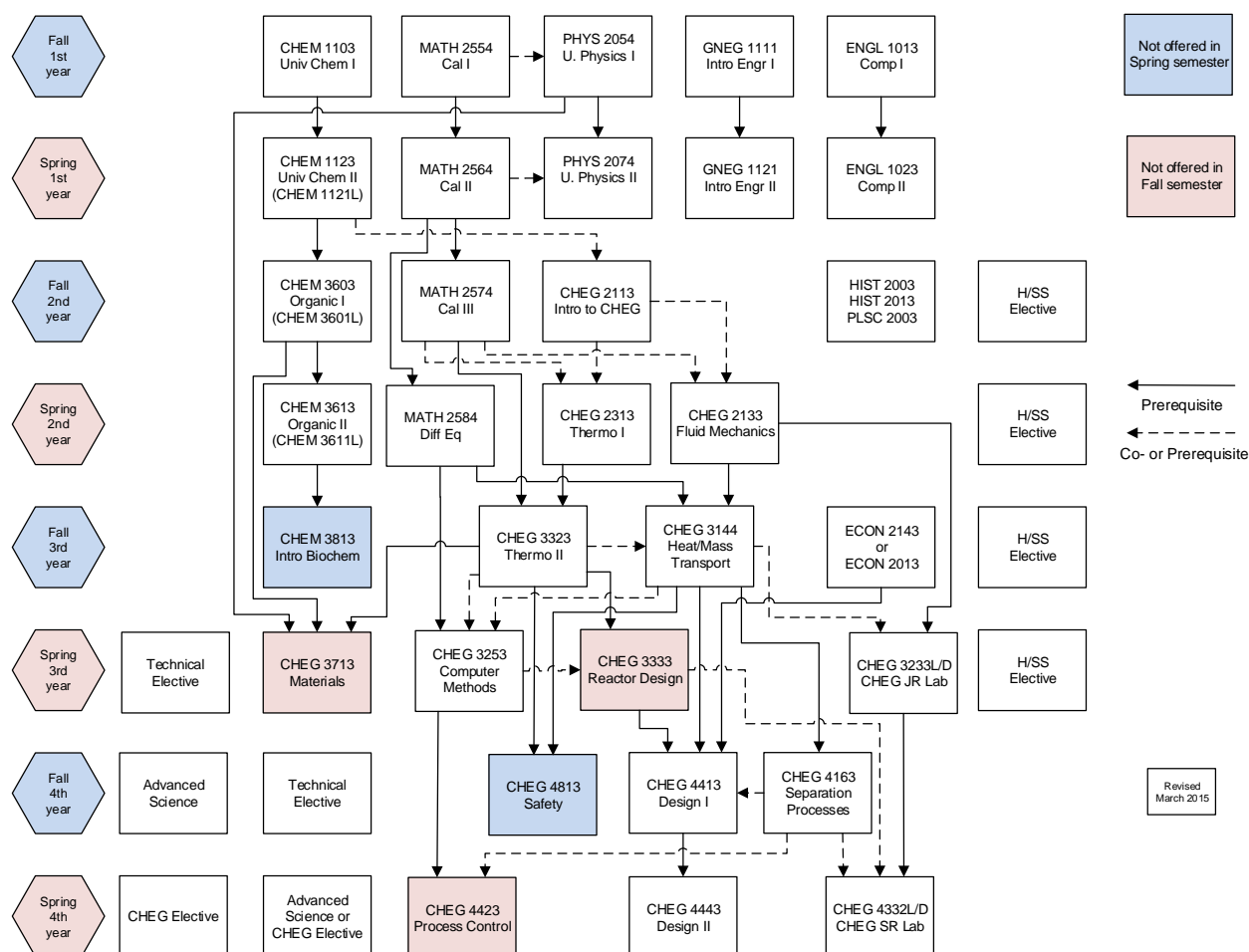


Figure 2. Fall 2015 (128-Hour) Suggested Program of Study

It is realized that students progress through the curriculum at different rates. It is the responsibility of both the student and his/her advisor to carefully plan a student's schedule of classes to balance course offerings with the required pre- and co-requisites.

Elective Options in Chemical Engineering

An undergraduate education in chemical engineering provides a firm foundation for many areas of specialization. Students may elect to take courses in areas of specialization as technical electives, upper level Chemistry/Physics electives or elective courses outside the Chemical Engineering curriculum.

Courses in the following areas can strengthen the background of a student in a particular area of expertise:

- Biotechnology/Biomedical Engineering
- Chemical Process Safety
- Environmental Engineering
- Food Process Engineering
- Materials Science and Engineering
- Microelectronics
- Nuclear Power Engineering

- Pre-medicine
- Simulation and Optimization
- Sustainability

Consult with your advisor for specific courses and their applicability to the Chemical Engineering program.

GNEG Introduction to Engineering Classes

GNEG 1111/1111H and GNEG 1121/1121H are required courses in the Chemical Engineering curriculum. However, many transfer students come to Chemical Engineering with advanced standing and, for them, the GNEG classes will be waived. In these cases, two hours of STEM-related courses will take the place of the waived GNEG classes. GNEG 1201 is not accepted for credit in Chemical Engineering. GNEG 1103, GNEG 1301H, GNEG 1311H, GNEG 1322H, GNEG 1401H, GNEG 1411H and GNEG 1422H are suitable replacements for GNEG 1111/1111H and GNEG 1121/1121H.

Humanities and Social Science Electives

The Requirements

1. All students are required to take HIST 2003, HIST 2013 or PLSC 2003.
2. Of the 15 hours of Humanities and Social Science Elective courses that remain, the Humanities/Social Science Elective requirement states that
 - a. THREE hours MUST be in HUMANITIES from the approved list of classes.
 - b. THREE hours MUST be in FINE ARTS from the approved list of classes.
 - c. NINE hours MUST be in SOCIAL SCIENCES from the approved list of classes. Since ECON 2143 or ECON 2013 is specifically required in the Chemical Engineering degree program, SIX additional hours are required.
3. If the student entered the program prior to Fall 2012 and elects to use the old system for Humanities and Social Science Electives (with the previous requirement for both upper and lower level classes) or a hybrid of the old system and new system,
 - a. SIX hours MUST be in HUMANITIES or FINE ARTS from the approved list, and NINE hours MUST be in SOCIAL SCIENCES (again, ECON 2143 or ECON 2013 is specifically required in the Chemical Engineering degree program).
 - b. TWO or more academic departments MUST be included in each category. Note that ARCH 1003, ARHS 1003, ARTS 1003, COMM 1003, DANC 1003, DRAM 1003, HUMN 1003, LARC 1003 and MLIT 1003 are all part of the FINE ARTS (FNAR) Department.
 - c. If the student selects upper level courses from the SOCIAL SCIENCES only, three hours of the lower level humanities must be from FINE ARTS and three hours must be from other HUMANITIES.

Approved Courses

A listing of the approved humanities/social science electives may be found on the College of Engineering web site at <http://catalog.uark.edu/undergradcatalog/academicregulations/universitycore/>.

Technical Electives

Technical electives are part of each of the degree plans, as follows:

- Three hours of technical electives are required in the Fall 2013 curriculum
- Six hours of technical electives are required in either version of the Fall 2015 curriculum

In general, any upper level (3XXX-level or above) course in the sciences, math or engineering may serve as a technical elective, with prior approval by your academic advisor. Technical electives can be chosen from the list of advanced science/chemical engineering elective classes, if desired. BIOL 2013, BIOL 2213, BIOL 2323 and BIOL 2443 are 2XXX-level courses that can also serve as technical electives, and are also useful for students applying to medical school. INEG 2313, INEG 2333, INEG 2413 and INEG 2513 are statistics-oriented classes, and may be used for technical elective credit. Upper-level courses in non-technical areas such as business may also serve as technical electives with prior approval by your academic advisor. Finally, students who have completed chemical engineering courses from the Fall 2013 program that are no longer offered (such as CHEG 2123, Introduction to Chemical Engineering II, and CHEG 2212, Chemical Engineering Laboratory I) will be given technical elective credit for these courses. Consult your advisor for specific course substitutions. Co-op/internship classes (GNEG 3811) receive technical elective credit in Chemical Engineering, and may be repeated for a total of three hours. There is no specific list of approved technical electives.

Advanced Science/Chemical Engineering Elective Courses

Advanced science/chemical engineering elective courses are required in both of the 128 hour degree plans, as follows:

- Six hours of Advanced Science/Chemical Engineering elective courses are required in the Fall 2013 curriculum. A maximum of three hours of approved chemical electives may be used to satisfy this requirement.
- Six hours of Advanced Science/Chemical Engineering elective courses and three hours of Chemical Engineering elective courses are required in the Fall 2015 curriculum. Thus, at least three hours of Advanced Science electives (and no more than six hours) and at least three hours of approved chemical engineering electives (and no more than six hours) may be used to satisfy this requirement.

Table 3 shows the approved list of courses by category (Advanced Science or Chemical Engineering electives). Courses not on the list *may* satisfy the requirement with student appeal and approval by the Chemical Engineering faculty. Additional Chemical Engineering elective course offerings are planned.

Table 3. Approved List of Advanced Science/Chemical Engineering Elective Courses
ADVANCED SCIENCE ELECTIVES

- CHEM 2263, Analytical Chemistry Lecture (CHEM 2261 is not a required co-requisite for chemical engineering students)
- CHEM 2261, Analytical Chemistry Laboratory
- CHEM 3451L, Elements of Physical Chemistry Laboratory (note co-requisite of CHEM 3453)
- CHEM 3453, Elements of Physical Chemistry (course not allowed with CHEM 3504 or CHEM 3514; CHEM 3451 is not a required co-requisite for chemical engineering students)
- CHEM 3504, Physical Chemistry
- CHEM 3514, Physical Chemistry II
- CHEM 4123, Advanced Inorganic Chemistry
- CHEM 4153L/4153M, Nanotechnology Laboratory (students may not also receive credit for PHYS 4793L)
- CHEM 4211L, Instrumental Analysis Laboratory (note co-requisite of CHEM 4213)
- CHEM 4213, Instrumental Analysis (CHEM 4211 is not a required co-requisite for chemical engineering students)
- CHEM 4843H, Biochemistry II (must have CHEM 4813H to take this course)
- CHEM 4853, Biochemical Techniques

- FDSC 4304, Food Chemistry
- PHYS 3113, Analytical Mechanics
- PHYS 3414, Electromagnetic Theory
- PHYS 3544, Optics
- PHYS 3613, Modern Physics
- PHYS 4073, Introduction to Quantum Mechanics
- PHYS 4333, Thermal Physics
- PHYS 462VL, Modern Physics Laboratory
- PHYS 4734, Introduction to Laser Physics
- PHYS 4793L, Nanotechnology Laboratory (students may not also receive credit for CHEM 4153/4153M)

CHEMICAL ENGINEERING ELECTIVES

Students may elect to take **one** course from the following list of upper level Chemical Engineering classes:

- CHEG 4273/5273, Corrosion Control
- CHEG 488V, 3 hours, lecture classes only (e.g., Polymer Theory and Practice, Petroleum Processing, Agitation and Mixing); research/special problems classes are not allowed in satisfying the upper level Chemistry/Physics/Chemical Engineering course requirement
- CHEG 5013, Membrane Separation and System Design
- CHEG 5033, Technical Administration
- CHEG 5043, Colloids and Surfaces
- CHEG 5113, Transport Processes I
- CHEG 5133, Advanced Reactor Design
- CHEG 5213, Advanced Chemical Engineering Calculations
- CHEG 5333, Advanced Thermodynamics
- CHEG 5353, Advanced Separations
- CHEG 5513, Biochemical Engineering Fundamentals
- CHEG 5733, Polymer Theory and Practice
- CHEG 588V, 3 hours, lecture classes only (e.g., Advanced Thermo II, Membranes in Medicine); research/special topics classes are not allowed in satisfying the upper level Chemistry/Physics/Chemical Engineering course requirement

Courses Satisfying the ENGL 1013 and ENGL 1023 Exemption

Some students entering the University of Arkansas are *exempted* from ENGL 1013 and ENGL 1023 because of high ACT scores, but do not receive credit for the courses. Credit for ENGL 1013 and ENGL 1023 upon entering the university usually comes from AP or CLEP credit, or from the transfer of the classes from another university. The ENGL 1013/ENGL 1023 exemption can be satisfied by six hours of any non-remedial courses.

Transfer Credit Rules

Transfer credits from other institutions are evaluated by the Registrar's Office, in conjunction with the Engineering Dean's office and the Department of Chemical Engineering. Grades earned at other institutions are not used in calculating a student's grade point average at the University of Arkansas. Several rules apply regarding transfer credit:

- No “D” grades are allowed for transfer credit without special appeal.
- No more than 68 hours of lower division (1XXX-, 2XXX-level) courses can be transferred
- Courses that satisfy the State Minimum Core (SMC) at another institution of higher learning in Arkansas, typically shown as 299TT courses, are fully transferrable to the University of Arkansas, assuming a grade of “C” or better.
- There is no limit on the number of upper division (3XXX-level or above) courses that may be transferred to the University of Arkansas, but transfer students must also satisfy the Residence Requirement (see U of A catalog for more information).
- The Chemical Engineering Department has the final say on whether courses may transfer for credit to the University of Arkansas with one major exception—humanities/social electives. The transfer for credit for all lower and upper level humanities/social science electives must be approved by either the Registrar’s office, the home department at the U of A in which the course was taken (for example, the Economics Department for CHEG 299T transferring as ECON 2013 or ECON 2143) or a committee of the College of Engineering.

Courses that do not Count toward Degree Requirements

Remedial 0002/0003 courses, MATH 1203, MATH 1204, MATH 1213, MATH 1284, GNEG 1515 and ENGL 2003 cannot be counted toward the requirements for an Engineering degree.

Student Advising

All Chemical Engineering students will be required to meet with their academic advisor prior to removal of the advising hold and being allowed to sign up for courses. Students on co-op may be allowed to satisfy this requirement by e-mail, at the discretion of the advisor.

The Advising Process:

1. To initiate the advising process, students are requested to copy the appropriate advising sheet (see Appendix), and simply “X” out the courses they have taken or are presently taking.
2. As a second step, the student is requested to list the humanities/social electives, advanced science/chemical engineering electives and technical electives that he/she has taken or is taking in the appropriate categories.
3. As a final step, the students are requested to “circle” the courses they plan to take in the next semester. If a student is to be advised in the Spring for both the summer and fall semesters, write an “S” in the appropriate circles for summer and an “F” in the appropriate circles for fall. The student (and advisor) should always be looking ahead to foresee potential pitfalls with courses that might occur in later semesters, and your advisor will often help you plan out schedules for several subsequent semesters. If a student does not know which courses to take or would like to discuss course offerings with his/her advisor, simply stop the process after placing an “X” in the courses that have been taken and after listing the humanities/social electives and technical electives that have been taken. As was noted above, it is the responsibility of both the student and his/her advisor to carefully plan the student’s schedule of classes to balance course offerings with the required pre- and co-requisites. This does not mean that pre- and co-requisites will *never* be violated, but it does mean that significant efforts should and will be made to *avoid pre- and co-requisite violations* because the pre- and co-requisites are carefully set by the faculty to facilitate student success in courses.
4. All students should also fill out or update the Employment, Research, Honors College, Study Abroad form (see Appendix), and all Honors students should complete the Honors forms (found

at <http://engineering.uark.edu/academics/undergraduate-students/honors-program.php>) when appropriate. The Honors Advising Form is due in the Engineering Dean's Office 15 months prior to graduation. For more details on the Honors program and required forms, consult the Honors advisor.

The student brings the appropriate advising forms to a meeting with his/her academic advisor, who is best contacted by e-mail to set up an appointment. This subsequent meeting may be very short if the scheduling of classes is straight-forward, or may be a bit lengthy if the student is having trouble scheduling classes or needs to develop a plan for all of the semesters remaining in the degree plan. In general, this is not the best time to get into lengthy advising discussions, but this is a time to set up a time for later lengthy advising discussions. After discussing the class schedule and listing of Honors courses, the advisor will remove the advising hold, which will permit the student to sign up for classes after their appointed advising time. If the student is required to make changes to the schedule due to conflicts, the student should communicate this information to his/her advisor.

Degree Check

During the advising session *prior to* the start of a student's final semester before graduation, the student should make arrangements with their advisor for a preliminary degree check, which ensures that the student is taking all of the required courses and will satisfy all requirements for graduation. Since many of our students can currently choose their program of study (128 hours, Fall 2013 or Fall 2015, or 132 hours), this choice must be made at the time of the preliminary degree check. The degree check is a course by course match of degree requirements with courses taken at the university, transfer courses and credit courses. It is also an opportunity to make sure that the student's grade point average and other requirements are sufficient for graduation. The result of the degree check is a list of courses still required for graduation, and any questions regarding grade point average, transfer credit, etc. This information will be transmitted to the student by e-mail for follow-up, if necessary. The preliminary degree check is completed prior to the last semester so that the student will have an opportunity to complete any courses that may have initially been a surprise to the student. A final degree check is made by the student's advisor, the Associate Dean in Engineering and the university just after graduation.

Requirements for Graduation

The Engineering Dean's office will be making sure that each student meets the following graduation requirements. Consult the catalog for clarification and any additional requirements:

- The student's overall cumulative grade point average must be ≥ 2.0
- The student's cumulative grade point average in engineering courses presented for graduation must be ≥ 2.0
- The student's cumulative grade point average in Chemical Engineering courses presented for graduation must be ≥ 2.0
- For students entering the College of Engineering in Fall 2014 or later, a maximum of eight hours of "D" grades may be presented for graduation. For students entering the College prior to Fall 2014, no more than 15% of the courses **taken on this campus and presented for graduation** may be "D" grades.
- The total hours taken must be \geq the required hours (currently 128 or 132 hours in the Chemical Engineering Department, depending on degree plan)
- The student must complete the State Minimum Core (SMC):

- English (6 hours—ENGL 1013, ENGL 1023 or waived by ACT score with appropriate substitution of hours)
- Mathematics (3 hours)
- Science (8 hours)
- Humanities (3 hours)
- Fine Arts (3 hours)
- Social Science (9 hours, noting that 3 hours of ECON 2143 or 2013 is required in Chemical Engineering)
- U.S. History/American Government course
- The ENGL 1013 and ENGL 1023 Exemption must not be satisfied by remedial coursework
- No 0002/0003 courses, MATH 1203, MATH 1204, MATH 1213, MATH 1285, GNEG 1515 and GNEG 1201 are counted toward the requirements for an engineering degree
- No “D” grades are transferred into the University of Arkansas without special appeal
- No more than 68 hours of lower division (1XXX-, 2XXX-level) courses are transferred into the University of Arkansas
- The residence requirement is satisfied
- All departmental course requirements are satisfied
- The degree check has been made, and all subsequent requirements (courses, no “D” grades, etc.) have been met

APPENDICES

132-Hour Degree Plan

Although most of the students studying Chemical Engineering now use a 128-hour degree program (established in Fall 2013 and modified for Fall 2015), it is possible to use an earlier 132-hour program of study if you entered the university prior to Fall 2013. **However, students using the 132-hour program of study should be aware of the following course substitutions:**

- CHEM 3813, Introduction to Biochemistry, or CHEM 4813H, Honors Biochemistry I, may be substituted in place of MEEG 2003, Statics; CHEG 3713, Chemical Engineering Materials, may be substituted in place of MEEG 3013, Mechanics of Materials. Note that MEEG 2003 is a prerequisite for MEEG 3013.
- Two hours of free elective (along with six hours of upper level science, from the approved list) may be used to satisfy the requirement of eight hours of upper level science electives. For those students transferring from FEP, GNEG 1111 and GNEG 1121 will satisfy the free elective requirement since GNEG 1111, Introduction to Engineering I, and GNEG 1121, Introduction to Engineering II, are not requirements in the 132-hour program of study.
- CHEG 2221, Professional Practice Seminar, is no longer offered, and is replaced by one hour of free elective.

Please note the other program changes (that apply both to the 128-hour and 132-hour programs) noted earlier in the document.

Optional 132-Hour Suggested Program of Study

May be Used by Students Entering the University prior to Fall 2013

(numbers in parentheses (XXXX) are the more recent course numbers for the same courses)

Fall—Year 1

MATH 2554, Calculus I

CHEM 1123, University Chemistry II^a

CHEM 1121L, University Chemistry II Lab^a

ENGL 1013, Composition I

CHEG 1113 (2113), Intro to Chemical Engineering I
Lab I

HIST 2003, HIST 2013 or PLSC 2003

17 hours

Spring—Year 1

MATH 2564, Calculus II

ENGL 1023, Composition II

CHEG 1123 (2123), Intro to Chemical
Engineering II

CHEG 1212L (2212), Chemical Engineering

Humanities/Social Science Elective, 3 hours
15 hours

Fall—Year 2

MATH 2574, Calculus III

Equations

CHEM 3603, Organic Chemistry I

CHEM 3601L, Organic Chemistry I Lab

PHYS 2054, University Physics I

CHEG 2221, Pro Practice Seminar^b

CHEG 2313, Thermodynamics of Single Comp

16 hours

Spring—Year 2

MATH 3404 (2584), Differential

CHEM 3613, Organic Chemistry II

CHEM 3611L, Organic Chemistry II Lab

PHYS 2074, University Physics II

CHEG 2133, Fluid Mechanics

CHEG 3323, Thermo of Multicomp. Systems

18 hours

Fall—Year 3

CHEM elective—4 hours^c

CHEM 3813, Intro to Biochemistry^d

CHEG 3143, Heat Transport

CHEG 3232L, Chemical Engineering Lab II

CHEG 3253, Chem Engr Computer Methods

Spring—Year 3

CHEM elective—4 hours^d

CHEG 3713, Materials Technology in ChE^e

CHEG 3333, Chemical Engr Reactor Design

CHEG 3153, Non-equilibrium Mass Transfer

ECON 2143 or ECON 2013

Humanities/Social Science Elective, 3 hours
18 hours

16 hours

17

Fall—Year 4
CHEG 4163, Equilibrium Stage Mass Transfer
CHEG 4413, Chem Engr Design I
CHEG 4813, Chemical Process Safety
Technical Elective, 3 hours
Humanities/Social Science Elective, 3 hours
15 hours

Spring—Year 4
CHEG 4332, Chemical Engineering Lab III
CHEG 4443, Chem Engr Design II
ELEG 3903, Electric Circuits and Machines
CHEG 4423, Auto Process Control
Technical Elective, 3 hours
Humanities/Social Science Elective, 3 hours
17 hours

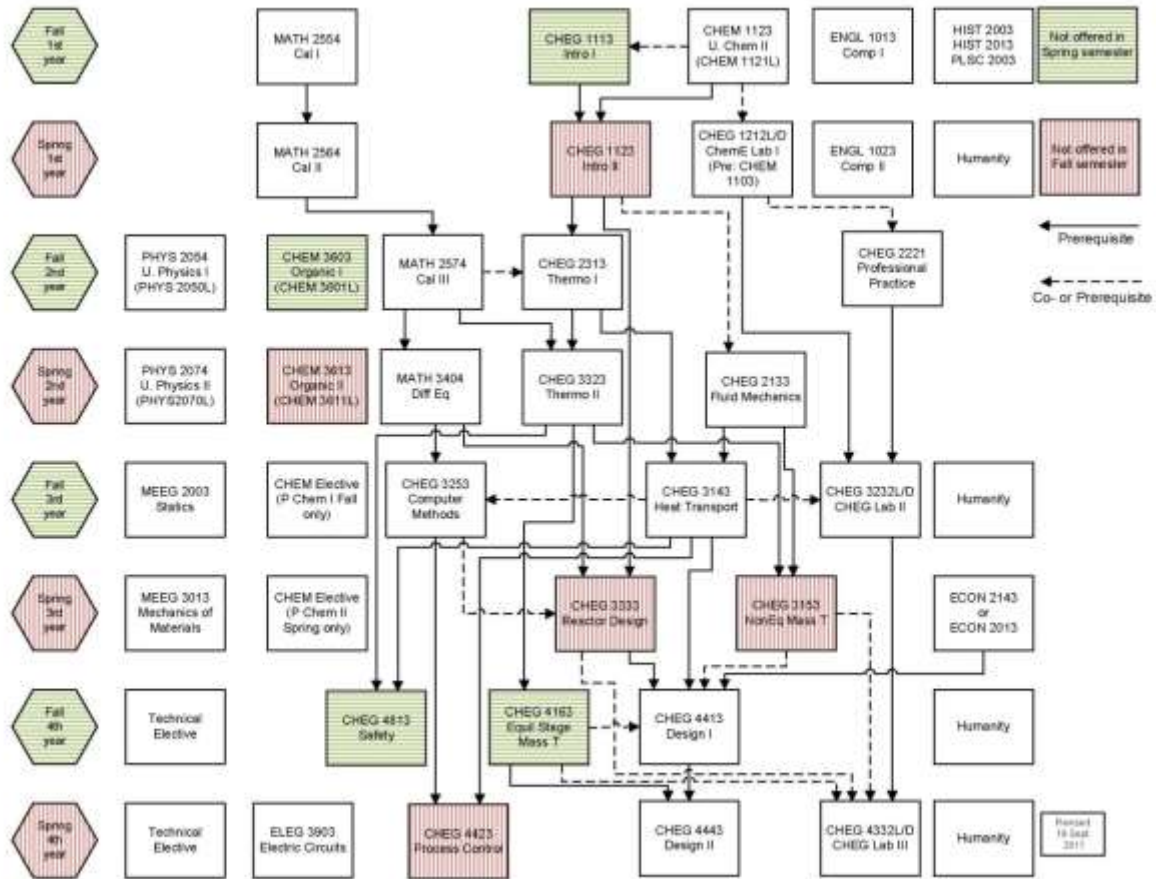
^aOr CHEM 1133/CHEM 1131L

^bNow a free elective

^cThe CHEM elective requirement may be satisfied with 6 hours of upper level chemistry, physics and chemical engineering classes (3 hours maximum for chemical engineering classes), and 2 hours of free elective

^dor MEEG 2003

^eor MEEG 3013



132-Hour Optional Suggested Program of Study
 (May be Used by Students Entering the University prior to Fall 2013)

Advising Forms

2017-2018 Employment, Research, Honors College, Study Abroad—Ralph E. Martin Department of Chemical Engineering

Name: _____ Student i.d.: _____
 e-mail: _____ Expected graduation date: _____
 Plans after graduation: _____
 Note: Ask your advisor for a degree check if you graduating next semester

Employment

Accepted permanent job. Company: _____ Location: _____
 Seeking permanent employment. Restrictions: _____
 Seeking temporary employment. Co-op Internship Part-time
 Had employment during May, 2016-May, 2017. Co-op Internship Part-time
 Company: _____ Location: _____
 Have had employment some time during academic career.
 Company Location Employment Dates Type of Employment

Research

Have research experience. REU Research at U of A Other
 Location of Research Mentor Dates of Research Activity

Received SURF/Honors College grant(s). When?: _____
 Did research during May, 2016-May, 2017. Mentor: _____
 Seeking research opportunity. REU Research at U of A Other

Honors College Activity

Member of Honors College Plan to graduate with Honors
 Honors Courses completed (list, including AP classes): _____

Submitted Honors Advising form, if within 15 months of graduation
 Honors thesis project: _____

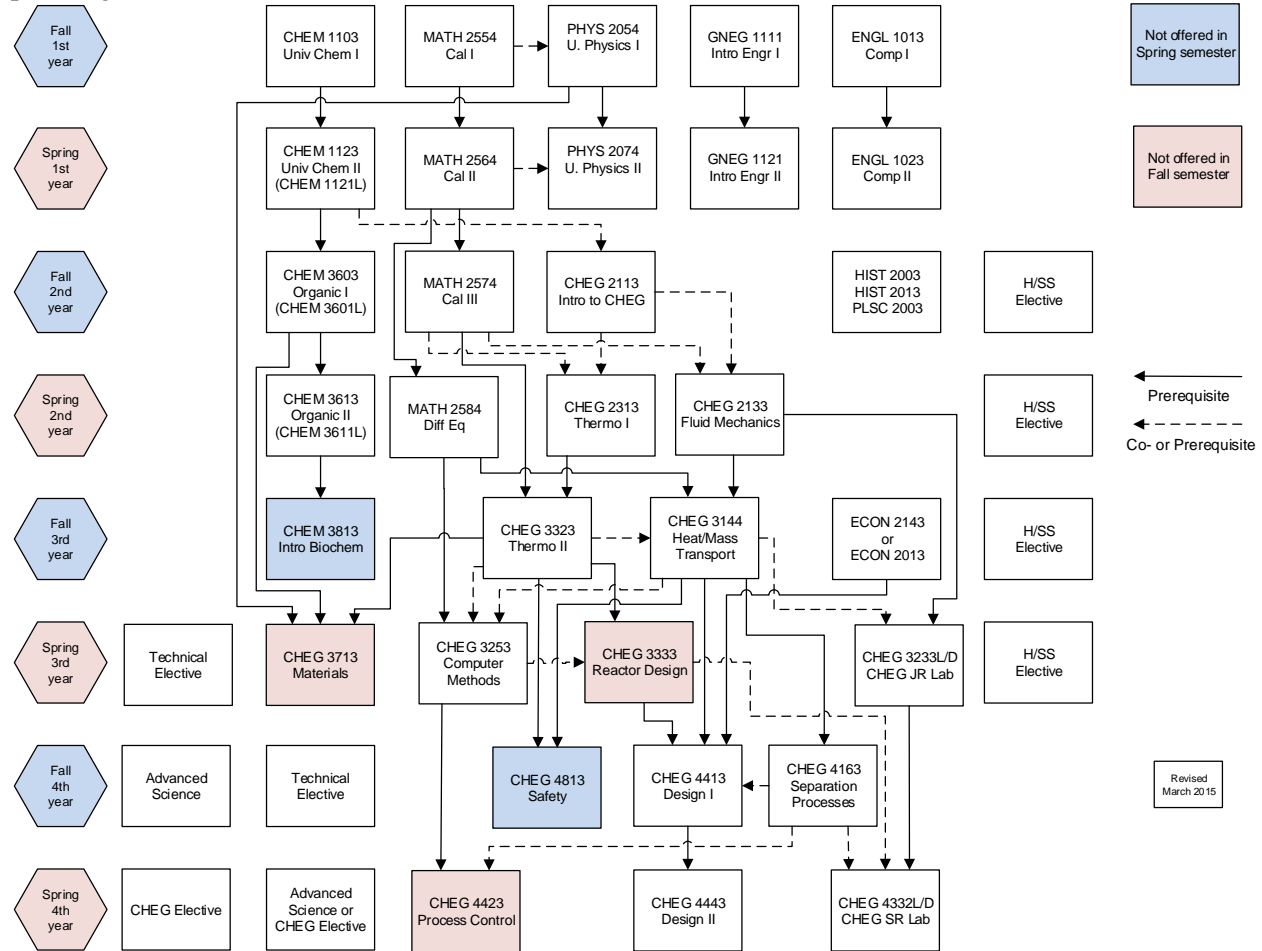
Study Abroad

Location Dates Received Travel Grant

**Ralph E. Martin Department of Chemical Engineering
Fall 2015 (128 hour) plan**

Name: _____ ID: _____ Semester: _____

_____ “X” out the courses you have passed, or are taking; circle the classes you are planning to take



History/HSS Electives (18 hr)

1. HIST 2003, 2013 or PLSC 2003
2. Hum: _____
3. Fine Arts: _____
4. Soc Sci 1: ECON 2143 or ECON 2013
5. Soc Sci 2: _____
6. Soc Sci 3: _____

Technical Elective (6 hr)

1. _____
2. _____

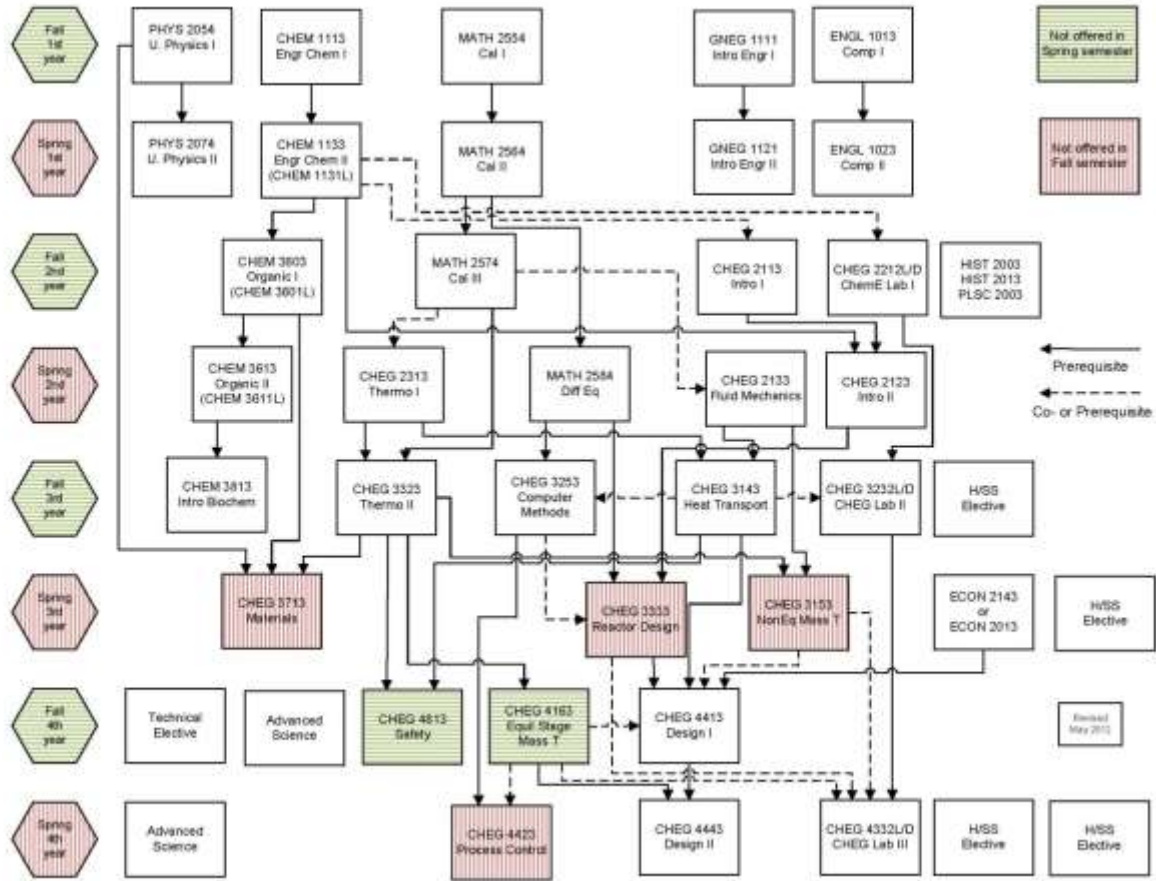
Advanced Science/CHEG Electives (9 hr)

1. _____ (AS)
2. _____ (AS/CHEG)
3. _____ (CHEG)

University of Arkansas
Ralph E. Martin Department of Chemical Engineering
Fall 2013 (128 hour) plan

Name: _____ **ID:** _____ **Semester:** _____

_____ “X” out the courses you have passed, or are taking; circle the classes you are planning to take



History/HSS Electives (18 hr)

1. HIST 2003, 2013 or PLSC 2003
2. Hum: _____
3. Fine Arts: _____
4. Soc Sci 1: ECON 2143 or ECON 2013
5. Soc Sci 2: _____
6. Soc Sci 3: _____

Technical Elective (3 hr)

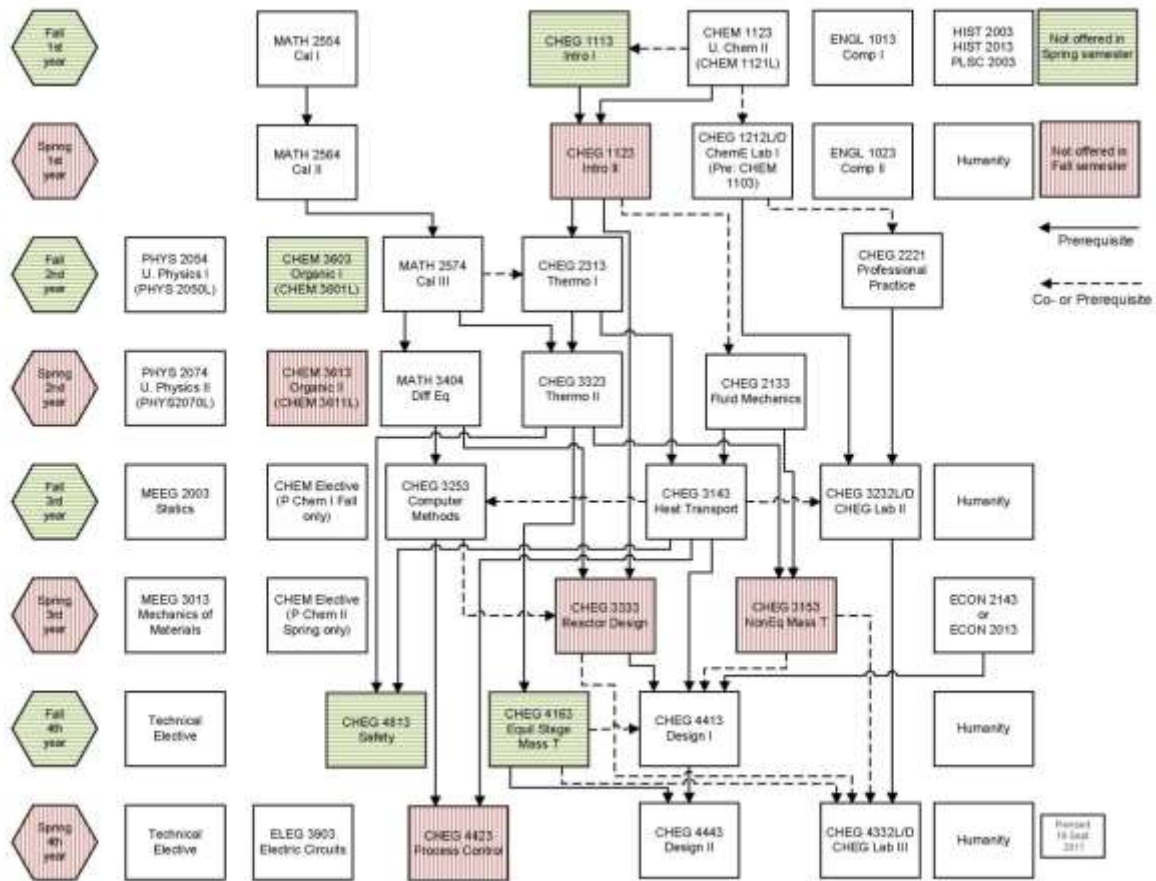
1. _____

Advanced Science/CHEG Electives (6 hr)

1. _____
2. _____

University of Arkansas
Ralph E. Martin Department of Chemical Engineering
Optional 132 hour plan (option for students entering prior to Fall 2013)
Name: _____ ID: _____ Semester: _____

“X” out the courses you have passed, or are taking; circle the classes you are planning to take

**HSS Electives (18 hr)**

1. HIST 2003, 2013 or PLSC 2003
2. Hum 1: _____
3. Hum 2: _____
4. Soc Sci 1: ECON 2143 or ECON 2013
5. Soc Sci 2: _____
6. Soc Sci 3: _____

Technical Electives (6 hr)

1. _____
2. _____

Upper Level Chem/Physics (8 hr)

1. _____
2. _____
3. _____

The Honors Advising Form, Honors Graduation Certification Form, Honors Thesis and Signature Page, Honors Thesis Author Agreement, Step-by-Step Instructions and Honors Thesis Submission Guidelines are found at <http://engineering.uark.edu/academics/undergraduate-students/honors-program.php>.