Notes from Orientation
Purpose

The University of South Carolina at Columbia is a large, complex institution with 35,000+ students currently enrolled. To function in this environment, a student must know where to find the rules, procedures, and opportunities to make the most of his/her college experience. The purpose of this handbook is to serve as an initial reference. This handbook is not intended to contain complete information on any specific questions but to provide basic information and direct the user to sources that have more details.

Sources of Information

The University of South Carolina Undergraduate Studies Bulletin 2016-2017
Available at http://bulletin.sc.edu, this website contains academic rules and regulations, all of the University’s academic programs, and course descriptions, among other essential information. It is recommended that each student bookmark this site and print out the section on the College of Engineering and Computing.

The College of Engineering and Computing Website
Available at http://www.cec.sc.edu, this website has department links and links to the Office of Student Services and the Information Technology (IT) office. Curriculum information, advisement information, department news, and information on a student’s College computer accounts can be found here. Click on My CEC to get to your department’s website.

Carolina Core Master List
Courses that are acceptable to meet Carolina Core requirements are available on the web at http://www.sc.edu/carolinacore/courses.php. This list is updated each year as more courses are approved.

USC Office of the University Registrar
The Registrar’s website http://registrar.sc.edu has key information on the registration system (Self Service Carolina), when to pay fees, the academic year calendar, and refund calendars. It is recommended that each student bookmark this site and print out the academic and refund calendars each semester.

USC Office of the Bursar
The Bursar’s website, http://www.sc.edu/bursar has key information on tuition and fees, payment schedules, how to pay, refunds, and collections. It is recommended that each student bookmark this site.
Important Phone Numbers
College of Engineering and Computing

Dean of the College................................................................. 777-7356
Office of Student Services ......................................................... 777-4177
Biomedical Engineering............................................................ 777-1845
Chemical Engineering Department ............................................. 777-0556
Civil and Environment Department ............................................ 777-3614
Computer Science and Engineering Department ....................... 777-2880
Electrical Engineering Department ............................................. 777-5174
Mechanical Engineering Department ........................................ 777-1578
Information Technology Services Help Desk ............................ 777-7223

University Offices

Registrar .................................................................................... 777-5555
Financial Aid and Scholarships .................................................. 777-8134
Student Health Center .............................................................. 777-3175
Orientation and Testing .............................................................. 777-2782
Parents Assistance Line ............................................................. 800-868-6752

Commission on Higher Education

LIFE Scholarship Coordinator ..................................................... 803-737-2262
The Carolina Creed

The community of scholars at The University of South Carolina is dedicated to personal and academic excellence.

Choosing to join the community obligates each member to a code of civilized behavior.

As a Carolinian …

I will practice personal and academic integrity;
I will respect the dignity of all persons;
I will respect the rights and property of others;
I will discourage bigotry, while striving to learn from difference in people, ideas, and opinions;
I will demonstrate concern for others, their feelings, and their need for conditions which support their work and development.

Allegiance to these ideas requires each Carolinian to refrain from and discourage behaviors which threaten the freedom and respect every individual deserves.
Administrative Structure of the College

Dean of the College

The chief administrator of the College of Engineering and Computing is the Dean of the College of Engineering and Computing, Dr. Hossein Haj-Hariri. His office is in the Swearingen Engineering Center, Room 3A01.

If Dean’s approval or signature is needed, please see Dr. Jed Lyons, Associate Dean for Academic Affairs, in the Office of Student Services, Room 1A00.

Department Chairs

<table>
<thead>
<tr>
<th>Department Chairs</th>
<th>Chemical Engineering</th>
<th>Civil Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Engineering</td>
<td>Dr. John Weidner</td>
<td></td>
</tr>
<tr>
<td></td>
<td>803-777-3207</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Swearingen/2C13</td>
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<tr>
<td>Computer Science and Engineering</td>
<td>Dr. Manton Matthews</td>
<td></td>
</tr>
<tr>
<td></td>
<td>803-777-3285</td>
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<tr>
<td></td>
<td>Swearingen/3A01K</td>
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</tr>
<tr>
<td>Mechanical Engineering</td>
<td>Dr. Jamil Khan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>803-777-1578</td>
<td></td>
</tr>
<tr>
<td></td>
<td>300 Main/A224</td>
<td></td>
</tr>
<tr>
<td>Biomedical Engineering Program Director</td>
<td>Dr. Melissa Moss</td>
<td></td>
</tr>
<tr>
<td></td>
<td>803-777-5604</td>
<td></td>
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<tr>
<td></td>
<td>Swearingen/3C15</td>
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Undergraduate Directors

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<tr>
<td>Chemical Engineering</td>
<td>Dr. Chris Williams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>803-777-0143</td>
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<tr>
<td></td>
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<tr>
<td>Computer Science and Engineering</td>
<td>Dr. Jose Vidal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>803-777-0928</td>
<td></td>
</tr>
<tr>
<td></td>
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<tr>
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<td>Dr. Stephen McNeill</td>
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</tr>
<tr>
<td></td>
<td>803-777-3407</td>
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<tr>
<td></td>
<td>300 Main/A133</td>
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<tr>
<td>Biomedical Engineering</td>
<td>Dr. Mark Uline</td>
<td></td>
</tr>
<tr>
<td></td>
<td>803-777-2030</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Swearingen/3C17</td>
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Office of Student Services

Located in Room 1A00 of the Swearingen Engineering Center, the Office of Student Services is responsible for undergraduate student affairs. Students with questions or problems should come to this office. Some of the specific student affairs responsibilities are:

Student Records  Graduation Requirements  Registration & Advising
Compliance  College Suspension  Transfers
Academic Policies & Procedures  Master Scheduling  College Scholarships
University Information  Room Scheduling  Athletic & Military Certification

Office of Student Services Personnel

<table>
<thead>
<tr>
<th>Dr. Jed Lyons, Associate Dean for Academic Affairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>(803) 777-4177 <a href="mailto:lyons@sc.edu">lyons@sc.edu</a></td>
</tr>
<tr>
<td>Ms. Donna Ford</td>
</tr>
<tr>
<td>Student Services Program Coord. I</td>
</tr>
<tr>
<td>(803) 777-4177 <a href="mailto:ford@cec.sc.edu">ford@cec.sc.edu</a></td>
</tr>
<tr>
<td>Ms. Susan Jarvie</td>
</tr>
<tr>
<td>Senior Academic Advisor</td>
</tr>
<tr>
<td>(803) 777-2525 <a href="mailto:sjarvie@sc.edu">sjarvie@sc.edu</a></td>
</tr>
<tr>
<td>Ms. Becky Mayo</td>
</tr>
<tr>
<td>Senior Academic Advisor</td>
</tr>
<tr>
<td>(803) 777-1461 <a href="mailto:mayo@cec.sc.edu">mayo@cec.sc.edu</a></td>
</tr>
<tr>
<td>Mrs. Ruth Patterson</td>
</tr>
<tr>
<td>Academic Program Manager</td>
</tr>
<tr>
<td>(803) 777-7577 <a href="mailto:ruthp@sc.edu">ruthp@sc.edu</a></td>
</tr>
<tr>
<td>Mrs. Laura Embler, Administrative Assistant</td>
</tr>
<tr>
<td>(803) 777-4177 <a href="mailto:emblerl@cec.sc.edu">emblerl@cec.sc.edu</a></td>
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</table>

First Year Academic Advisors

<table>
<thead>
<tr>
<th>Ms. Sarah Jusiewicz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Advisor</td>
</tr>
<tr>
<td>(803) 777-2350 <a href="mailto:jusiewis@mailbox.sc.edu">jusiewis@mailbox.sc.edu</a></td>
</tr>
<tr>
<td>Ms. Tiffany Lide</td>
</tr>
<tr>
<td>Academic Advisor</td>
</tr>
<tr>
<td>(803) 777-2350 <a href="mailto:lidetl@cec.sc.edu">lidetl@cec.sc.edu</a></td>
</tr>
<tr>
<td>Mr. Brian McCaster</td>
</tr>
<tr>
<td>Academic Advisor</td>
</tr>
<tr>
<td>(803) 777-2350 <a href="mailto:mccastbr@mailbox.sc.edu">mccastbr@mailbox.sc.edu</a></td>
</tr>
</tbody>
</table>
University Computer Accounts

To receive access to the CEC computer labs, the student must be registered as an Engineering and Computing student or enrolled in an Engineering or Computer Science course AND must have paid fees.

Once access has been granted, the student will log in with his/her University Network Username which is also used for Blackboard, USC wireless, and student email. The password for the Network Username may be set by choosing “View my IDs and manage my passwords” in the “Personal” section of the https://my.sc.edu portal.

If problems occur with logging in, please contact the ITS Help Desk in Room 1D35 of Swearingen Engineering Center. Please remember to bring your University ID card.

Rule of Academic Responsibility

“It is the responsibility of every student at the University of South Carolina to adhere steadfastly to truthfulness and to avoid dishonesty, fraud, or deceit of any type in connection with any academic program. Any student who violates this rule or who knowingly assists another to violate this rule shall be subject to discipline.”

Academic Advisement

All students can find their advisor by logging into Self Service Carolina and click on the Student Tab → Student Records → View Student Information. It is the student’s responsibility to contact his/her advisor to set up an advisement appointment.

New Freshmen Students

Incoming freshmen students in the College of Engineering and Computing will be assigned to a First Year Advisor. This advisor specializes in comprehensive academic advisement and issues unique to freshmen students. First Year Advisors are available during normal business hours and can be reached in person, by phone or by email. At the end of the freshmen year, students will be moved to a faculty advisor.

New freshmen students will receive advisement appointment information by email from their First Year Academic Advisor. New freshmen advising will begin earlier than for other students. Regularly view your University email!
**Continuing/Transfer/Readmitted Students**

Transfer students, continuing students and readmitted students will be assigned to a faculty advisor.

Advisement is conducted after Fall break and Spring break as follows:

- the last two weeks of October for the Spring semester
- the last two weeks of March for the Summer and Fall semesters.

Make your advisement appointment before leaving for Fall or Spring break !!!

Information, advice, and interpretations of University policies offered by academic advisors do not supersede the official statement of policies and academic regulations described in the Academic Bulletin. **Exceptions to University regulations cannot be made by academic advisors.** Any exceptions to the policies and regulations set forth in the University Undergraduate Studies Bulletin must be made by the appropriate college Scholastic Standards and Petitions Committee. Please visit the Office of Student Services in Room 1A00, Swearingen Engineering Center for complete academic information.

**Curriculum Sheets**

All students follow the curriculum of the academic bulletin for the year in which the student first enters the University. If future changes are made, the student continues to follow the original curriculum or may elect to follow a newer curriculum. To elect a newer curriculum, the student simply contacts the Office of Student Services to make the change.

The curriculum sheet serves as an outline to accomplish a degree in eight semesters. The curriculum sheets are a general guideline as each student will make his/her own progress through the program.

**Pre-requisite courses** are courses that must be accomplished before taking another course in the sequence. For instance, CHEM 111 must be completed before taking CHEM 112. In general, pre-requisite courses must be passed with a C or higher to progress to the next course.

**Course Load**

Full-time enrollment is a minimum of 12 semester hours. Most students must complete 15 semester hours each semester to graduate in 4 years or to meet LIFE or Palmetto Scholarship requirements. Full-time fees are calculated on 12 to 16 semester hours. An additional fee per credit hour will apply to any course loads above 16 semester hours. See Bursar’s website, [http://www.sc.edu/bursar](http://www.sc.edu/bursar), after July 4th for updated information on fees.

First semester freshmen students are not allowed to register for more than 18 hours. After the first semester, students may register for more than 18 hours if they have a USC gpa of 3.0 or better.
Registration Time Tickets

The Registrar will send Registration Time Tickets to all students on their Self Service Carolina accounts. If the student has been properly advised and has the advisement hold lifted, the student can then register (select courses) at the day and time indicated on his/her Registration Time Ticket.

Students are expected to complete registration (including the payment of all required fees) by the deadline listed in the registration calendar, http://registrar.sc.edu/html/calendar/default.stm, to avoid cancellation of classes and payment of a late registration fee of $5.00 per day ($350 maximum).

Grade Point Averages

The College of Engineering and Computing calculates a number of gpa’s that are not reflected on the student’s transcript. Lower division gpa is calculated on all lower division courses required for the major. Lower division gpa must be a minimum of 2.0 to progress to upper division engineering and computing courses. To graduate from the College of Engineering and Computing, students must have a minimum USC gpa of 2.0; a minimum of 2.0 (on all courses for the major.) University approved grade forgiveness may be applied to USC, major, and lower division gpa calculations.

Repetition of Course Work

When a course is repeated, both grades will be entered on the student’s permanent record and included in the grade point average, but course credit toward graduation will be given only once, unless otherwise stipulated in the course description.

The College of Engineering and Computing allows a maximum of four repeated engineering & computing courses. Regardless of other satisfactory work a course may not be taken a third time (2 chances to pass!). If a student exceeds four repeated engineering & computing courses or does not pass a course after two attempts, the student must change majors or transfer out of the College of Engineering & Computing.

Senior Check

A senior check is a final review to ensure requirements are being met for the major. It is typically done in the student’s junior year and before registering for senior year classes. Senior check requests can be made in the Office of Student Services or on the Student Services website. Once accepted to upper division, it is a good idea to request a senior check at the end of each semester to ensure proper progress is made.
**Class Attendance**

Students are obligated to complete all assigned work promptly, to attend class regularly, and to participate in whatever class discussions may occur. Absence from more than 10% of the scheduled class sessions, *whether excused or unexcused*, is excessive and the instructor may choose to exact a grade penalty.

The instructor’s attendance policy is found on the course syllabus. If a student anticipates absences in excess of 10% of the scheduled class sessions, prior approval from the instructor must be received before the last day to change schedule. See the registration calendar at [http://registrar.sc.edu/html/calendar/default.htm](http://registrar.sc.edu/html/calendar/default.htm).

**Dropping a Course**

Courses from which the student withdraws by the last day to change a schedule or drop without a grade of “W” will not be recorded on a student’s record.

After this drop/add period and throughout the next six weeks of a semester, any dropped course will reflect a grade of “W” on the student’s transcript. The grade of “W” is grade-neutral; it is not calculated in a student’s GPA.

![Removal of a “W” grade is not permitted except in cases of a documented administrative error.](image)

Students dropping a course or withdrawing from the University after the Withdrawal period of a semester will normally receive a grade of “WF.”

A “WF” is treated as an “F” in suspension conditions and in computing the student’s grade point average. Students who stop attending classes without officially withdrawing will have the grade of “F” recorded for all courses. This grade is included in all calculations and totals.

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Dropping all classes does not constitute formal withdrawal from the University. Withdrawal from courses after the last day of class is not permitted.
Exceptions to the assignment of a grade of “WF” are possible for verifiable, documented reasons. If a student must either drop a course or withdraw from the University for medical reasons, or because of a verified learning disability, or for another acceptable major cause after the penalty date (last day to receive a “W”), the grade of “W” may still be assigned. An Extenuating Circumstances Form (AS-122A), available from the Office of Student Services must be approved by the Associate Dean of Academic Affairs and all instructors.

**Extenuating Circumstances are highly unusual situations or medical issues. Students must provide documentation and must apply for extenuating circumstances before the last day of class. Poor academic performance or missing too many classes are not examples of extenuating circumstances.**

**Grading System**

It is the student’s responsibility to keep informed concerning all assignments made. Absences, whether excused or unexcused, do not absolve the student from this responsibility.

“A,” “B,” “C,” and “D” represent passing grades in order from highest to lowest. “B+,” “C+,” and “D+” may also be recorded. “F” represents failing performance.

“S” and “U” indicate satisfactory (passing) and unsatisfactory (failing) performance in courses carried under the Pass-Fail option. No course carried under the Pass-Fail option will affect a student’s grade point average or the evaluation of suspension conditions; however, all courses applied to a degree must be for a grade (“A,” “B,” “C,” etc).

“WF” is assigned for student withdrawal from a course after the penalty deadline prescribed in the registration calendar. The grade of “WF” is treated as an “F” in the evaluation of suspensions and grade point average computation.

“W” is assigned for student withdrawal from a course after the late registration period but before the penalty date. In exceptional cases, the grade of “W” will also be used after the first six weeks of a semester, primarily in cases of withdrawal from the University or from a course for medical reasons. A grade of “W” is not a part of the grade point average computation but will be recorded on a student’s permanent record.

“I” (Incomplete) is assigned at the discretion of the instructor if, in the instructor’s judgment, a student is unable to complete some portion of the assigned work in a course because of an unanticipated illness, accident, work-related responsibility, family hardship, or verified learning disability. By arrangement with the instructor, the student will have up to 12 months in which to complete the work before a permanent grade is recorded.

Re-enrolling in the course will not make up an Incomplete. **Do not re-enroll for the course!** After 12 months, an “I” which has not been made up is changed permanently to a grade of “F” or to the back-up grade indicated by the instructor on the Assignment of Incomplete Grade form.

“AUD” indicates a course was carried on an audit basis. Auditing a course
consists of attending classes and listening without responsibility for any assignments or examinations. No credit may be earned in an audited course by examination or otherwise. No audited course may be repeated for credit at a later date except by those students who have been verified as learning disabled by the Office of Student Disability Services and whose academic advisory plan recommends auditing a specific course before it is taken for credit.

Students who have registered for a course on an audit basis and who wish to change their registration to take the course for credit (or who wish to change from credit to audit) must do so no later than the last day to change course schedule or drop without a grade of “W” being recorded, as published in the registration calendar on the Registrar’s website.

**Grade Forgiveness**

It is the policy of the University of South Carolina that every currently enrolled fully-admitted, degree-seeking undergraduate earning a “D+”, “D”, “F” or “WF” in a USC course may take up to two (2) undergraduate courses for a second time for the purpose of grade forgiveness. Both the first and second grades for the same course shall appear on the USC permanent record, but only the second grade will be used in computing the University of South Carolina cumulative grade point average. An explanatory notice will appear on the record. Once grade forgiveness is applied to a repeated course, the action may not be revoked.

Eligible students wishing to apply the course grade forgiveness policy to a course enrollment may do so at any time during his/her undergraduate enrollment, but no applications will be honored after the degree is awarded. Grade forgiveness can only be applied once per course for a maximum of two courses (not to exceed 8 credits) on a student’s undergraduate academic record, without regard to the number of degrees sought. Under the grade forgiveness policy, the forgiven and repeated class must both be taken at the same USC campus.

Effective for the 2012-13 academic year; for a course taken the first time beginning in the Fall 2012 semester, the original course (first attempt) and the second attempt in the same course may be taken at the USC-Columbia campus or a USC regional campus (Lancaster, Salkehatchie, Sumter or Union). This does not apply to courses taken at USC Aiken, USC Beaufort and USC Upstate. Courses transferred from other institutions are excluded from this policy.

This policy does not preclude students from repeating classes multiple times, in accordance with program requirements, but only the second attempt at the class may forgive the original grade of D+, D, F, or WF. Only a regular letter grade can replace a forgiven grade. Grades of “W”, “I”, “S”, “U”, or “AUDIT” may not replace previous grades. Grades carrying an honor code violation sanction of “X” are not eligible for grade forgiveness.
University Probation

The record of every undergraduate student will be reviewed at the end of each fall and spring semester. When a student’s cumulative University of South Carolina gpa at the end of any semester is less than a 2.00, he or she is placed on academic probation. Any student who is on probation at the beginning of a fall or spring semester must achieve a certain cumulative University of South Carolina grade point average at the end of that semester in order to avoid suspension. Standards for continuing on probation are based on the cumulative grade hours the student has attempted at USC.

Probation Chart

<table>
<thead>
<tr>
<th>Cumulative Grade Hours Attempted (GH)</th>
<th>Placed on probation</th>
<th>Continue on probation (avoid suspension)</th>
<th>Removed from probation</th>
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<tbody>
<tr>
<td>12-35</td>
<td>below 2.00 cumulative GPA</td>
<td>1.500 or higher cumulative GPA</td>
<td>2.00 or higher cumulative GPA</td>
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<tr>
<td>36-71</td>
<td>below 2.00 cumulative GPA</td>
<td>1.800 or higher cumulative GPA</td>
<td>2.00 or higher cumulative GPA</td>
</tr>
<tr>
<td>72+</td>
<td>below 2.00 cumulative GPA</td>
<td>only with semester reprieve (see below) or by college petition</td>
<td>2.00 or higher cumulative GPA</td>
</tr>
</tbody>
</table>

SEMESTER REPRIEVE: Regardless of the USC GPA, a student may continue on probation and avoid suspension if the semester grade point average is 2.50 or greater.

When a student’s cumulative gpa at the end of any semester is a 2.00 or above, he or she is removed from academic probation.

University Suspension

First Suspension
Students unable to meet the standards shown above are suspended from the University of South Carolina for one fall or spring semester and the contiguous summer (approximately eight months). Students have the right to appeal their suspension to the petitions committee of the college or school in which they were enrolled when suspended.

Returning After First Suspension
After the suspension has been served, a student will be considered for readmission by the college or school to which the student is seeking admission. A student readmitted following suspension continues on probation and is reviewed for suspension at the end of each fall and spring semester. A semester grade point average of 2.50 or higher must be achieved each semester until the cumulative University of South Carolina gpa reaches the level above which suspension would occur (see chart).
During the first six weeks after returning from a first suspension, students must participate in an academic coaching session before being eligible to register for courses for the following semester. These sessions will provide students with the resources they need to meet their academic goals.

**Returning after Subsequent Suspension**

Students returning from a first suspension who fails to meet academic standards will be permanently suspended from the University. The duration of the second suspension is indefinite, and the student can be considered for readmission only after being approved for reinstatement by a successful petition from the college or school to which the student is seeking admission. A favorable decision by college petitions committee is unlikely within two years of the suspension.

Credits earned while a student is on academic suspension from the University cannot be applied toward a degree or used in improving grade point average.

**Taking Courses From Another School (Transient Status)**

Since the University is accountable for the integrity of its degrees, students entering the University to seek a degree should expect to complete the majority of their academic work at the University of South Carolina. In some programs, and with the permission of the Associate Dean for Academic Affairs, students may take up to 18 semester hours of courses in transient status provided:

- the student is in good standing at USC (USC gpa of 2.0 or higher)
- the courses are approved in advance by the Office of Student Services
- USC grades of (“D” “WF” or “F”) re-taken at USC
- the transient institution is fully accredited
- the student is not in the last 30 degree hours
- transient grades must be a C or higher to be applied to degree program

Credit for summer school, correspondence, and extension work completed at other institutions by a University student will not be accepted for transfer if the student has been enrolled previously in an equivalent course in the University. The last 30 semester hours must be earned in residence at the University, and at least half of the credit hours in the student’s major courses and in the student’s minor courses (if applicable) must be taken at the University.

Study abroad may be of particular benefit to students and the University cooperates in a variety of national and international exchange programs in which students may pursue up to a year of academic work at another institution. Special permission is granted to students in these programs with the advance approval of the academic advisor and the Associate Dean for Academic Affairs.
Advisement & Registration Materials

The following section includes:

1. Curriculum sheets for all degrees offered in the College of Engineering and Computing.

2. A Scheduling Worksheet.

3. A list of currently approved Carolina Core courses.
## BIOMEDICAL ENGINEERING CURRICULUM SHEET | FALL 2016

### FRESHMAN (34)

<table>
<thead>
<tr>
<th>FALL</th>
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<tbody>
<tr>
<td>BMEN 101</td>
<td>Prof. Dev. &amp; Ethics I</td>
</tr>
<tr>
<td>BIOL 101 &amp;L</td>
<td>SCI: Biological Principles I</td>
</tr>
<tr>
<td>CHEM 111 &amp;L</td>
<td>SCI: General Chemistry I &amp; Lab</td>
</tr>
<tr>
<td>MATH 141</td>
<td>ARP: Calculus I</td>
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<tr>
<td>ENGL 101</td>
<td>CMW: Critical Reading &amp; Comp.</td>
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### SOPHOMORE (32)

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<td>Vector Calculus</td>
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<td>CHEM 331 L</td>
<td>Organic Chem. Lab I</td>
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<td>BIOL 302 &amp;L</td>
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<td>BMEN 321</td>
<td>Biomonitoring &amp; Electrophys.</td>
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<tr>
<td>BMEN 391</td>
<td>Kinetics in Biomolecular Systems</td>
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<td>ECHE 320</td>
<td>Fluid Mechanics</td>
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### SENIOR (31)

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<tr>
<td>BMEN 427</td>
<td>Senior BMEN Design I</td>
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<td>BMEN ELCT</td>
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<td>TECH LAB</td>
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<td>ELECTIVE</td>
<td>GHS: Historical Thinking</td>
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### ADDITIONAL REQUIREMENTS (0-12)

These additional University requirements may be satisfied through overlay courses, by placement testing, or by stand alone courses beyond the curriculum requirements above.

- **CMS Effective, Engaged, and Persuasive Communication: Spoken Component**
  Any approved Carolina Core CMS overlay or stand alone course.

- **INF Information Literacy**
  USC's ENGL 102 or other approved Carolina Core INF overlay or stand alone course.

- **GFL Global Citizenship and Multicultural Understanding: Foreign Language**
  Score of two or better on foreign language test, or equivalent study of approved Carolina Core GFL course(s).
Biomedical Engineering Electives (9 hours)
BMEN 342, all 389's, 392, 499, 546, 572, all 589's
EMCH 580
EXSC 535
PSYC 507

Engineering Electives (6 hours)
ECIV 350, 521
ELCT 220, 321, 331, 350, 361, 363, 340
any Biomedical elective can be used as an engineering elective

Technical Electives (6 hours)
BIOL 250, 301, 303, 415, 460, 505, 530, 531, 534, 541 (or CHEM 550), 545 (or CHEM 555), 546 (or CHEM 556), 553, 561, 612, 620, 635, 653, 655, 662, 665, 667, 690
CHEM 321, 322, 334, 340, 541, 542, 545, 550 (or BIOL 542), 555 (or BIOL 545), 566 (or BIOL 546)
EXSC 530, 535, 562
MATH 344, 374, 520, 521, 524, 526 or 544, 546, 547, 550, 552
PHYS 514, 515, 516, 517, 521, 522
STAT 516, 518, 519, 520, 523, 525, 528, 530, 582
any Biomedical Engineering elective or Engineering elective can be used as a technical elective

Technical Lab Elective (1 hour)
BIOL 250L, 460L, 505L, 534L, 541L or (CHEM 550L)
CHEM 321L, 332L, 333L%, 334L, 340L, 541L, 542L, 550L or BIOL 541L)
ECIV 350L
EMCH 555L
EXSC 530L
MATH 344L
% CHEM 333L is a two credit course that may satisfy the CHEM 331L and technical lab elective.

Curriculum Notes
C or better required in ENGL 101, 102, MATH 141, 142, 241, 242, BMEN 211,
BIOL 101 & L, BIOL 302, CHEM 111 & L, CHEM 112, and PHYS 211.

ECHE 101, ENCP 101, or ELCT 101 can substitute for BMEN 101
ENCP 360 or EMCH 360 can substitute for ECHE 320

Fall 2016
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<td>CHEM 334</td>
<td>Organic Chemistry II</td>
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<td>MATH 241*</td>
<td>Vector Calculus</td>
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<td>MATH 242</td>
<td>Elem. Differential Equations</td>
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<td>PHYS 212&amp;L*</td>
<td>Essentials of Physics II &amp;Lab</td>
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<td>ELECTIVE</td>
<td>GHS: Historical Thinking</td>
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<td>Heat-Flow Analysis</td>
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<td>ECHE 567</td>
<td>Safety, Health &amp; Loss Prev.</td>
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**ADDITIONAL REQUIREMENTS (0-12)**

These additional University requirements may be satisfied through overlay courses, by placement testing, or by stand alone courses beyond the curriculum requirements above.

**CMS Effective, Engaged, and Persuasive Communication: Spoken Component**
PHIL 325, SAEL 200 or other approved Carolina Core CMS overlay or stand alone course.

**INF Information Literacy**
USC's ENGL 102 or other approved Carolina Core INF overlay or stand alone course.

**GFL Global Citizenship and Multicultural Understanding: Foreign Language**
Score of two or better on foreign language test, or equivalent study of approved Carolina Core GFL course(s).

**VSR Values, Ethics and Social Responsibility**
PHIL 325, SAEL 200 or any approved overlay or stand-alone Carolina Core VSR course.

* Indicates a lower division course to be completed before junior level courses.
Engineering Electives (6 hours)
ENCP 200 (or ECIV 200 or EMCH 200), ENCP 201 or EMCH 201, ENCP 210 (or ECIV 210 or EMCH 310), 260 (or ECIV 220 or EMCH 260), 330 (or EMCH 330), 460, 481, 499, 540; BMEN 211, 260, 271, 290, 300 and above, except 301 and 303; CSCE 211, 212, 240, 313, 317, 374; ECHE 202 (in combination with two credit hours of ECHE 499 for co-op students), 372, 389, 456, 497, 499, 520, 571, 572, 573, 574, 589; ECIV 300 and above except 360; ELCT 220, 221, 222, 300 and above; EMCH 300 and above, except 354 and 360.

Chemistry Electives (6 hours)

Chemistry Lab Electives (2 hours)
CHEM 321L, 331L (or 333L), 332L (or 334L), 541L, 542L, 550L, 591L, 592L, 621L.

Technical Electives (12 hours)
Includes all courses listed as Engineering Electives, Chemistry Electives, and Chemistry Lab Electives as well as ENCP 102 (or EMCH 111), MATH 374, 500 and above; STAT 500 and above except 541 and 591; BIOL 101, 101L, 102, 102L, 120, 120L, 200 and above; GEOL any course; MSCI any course; PHYS 300 and above; CSCE 145, 146, 206, 210, 215, 350.

Liberal Arts Electives (6 hours)
A list of acceptable Liberal Arts Elective courses is maintained in the department office and on its website. The list includes all Carolina Core Liberal Arts courses (AIU, CMS, GFL, GHS, GSS, and VSR), and other department approved courses. At least one of the six courses used to satisfy a Carolina Core Liberal Arts requirement or a Chemical Engineering Liberal Arts Elective requirement must be at the 300-level or above and in the same field of study as one of the other five courses.

Curriculum Notes:
C or better required in ENGL 101, 102, MATH 141, 142, 241, 242, 242, CHEM 111& L, and PHYS 211 & 211L.
FRESHMAN (35)

FALL
ECIV 101 Intro to Civil Engineering 3
CHEM 111 &L SCI: General Chemistry & Lab 4
MATH 141 ARP: Calculus I 4
ENGL 101 CMW: Critical Reading & Comp. 3
ELECTIVE AII: Aest. & Intr. Understanding 3

SPRING
ECIV 200 Statics 3
CHEM 112 &L General Chemistry II & Lab 4
ENGL 102* CMW: Rhetoric & Composition 3
MATH 142 ARP: Calculus II 4
PHYS 211 &L SCI: Essentials of Physics I & Lab 4

SOPHOMORE (32)

FALL
ECIV 201 Prog. & Graphics for ECIV 3
ECIV 210 Dynamics 3
MATH 241 Vector Calculus 3
PHYS 212 &L Essentials of Physics II & Lab 4
ELECTIVE GHS: Historical Thinking 3

SPRING
ECIV 111 Intro to Engr. Graphics 1
ECIV 220 Mechanics of Solids 3
ECIV 360 Fluid Mechanics 3
MATH 242 Elem. Differential Equations 3
STAT 509 Statistics for Engineers 3

JUNIOR (32)

FALL
ECIV 303 Civil Engr. Materials 3
ECIV 320 Structural Analysis I 3
ECIV 340 Intro. Transportaion Engr. 3
ECIV 350 Intro. Environmental Engr. 3
ECIV Lab ECIV Lab 1
ELECTIVE GSS: Social Science 3

SPRING
ECIV 330 Intro. Geotechnical Engr. 3
ECIV 362 Intro. Water Resource Eng. 3
ECIV DISTR ECIV Distribution 3
ECIV Elective ECIV Elective 3
ECIV Lab ECIV Lab 1
ESM Elective ESM Elective 3

SENIOR (31)

FALL
ECIV 405 Systems App. in ECIV 3
ECIV 470 Civil Engineering Design 4
ECIV DISTR ECIV Distribution 3
ECIV DISTR ECIV Distribution 3
ECIV Elective ECIV Elective 3

SPRING
ECIV DISTR ECIV Distribution 3
ECIV Elective ECIV Elective 3
ECIV Elective ECIV Elective 3
ECIV Elective ECIV Elective 3

ADDITIONAL REQUIREMENTS (0-12)
These additional University requirements may be satisfied through overlay courses, by placement testing, or by stand alone courses beyond the curriculum requirements above.

CMS Effective, Engaged, and Persuasive Communication: Spoken Component
PHIL 325 (CMS/VSR overlay); or SPCH 140

INF Information Literacy
USC's ENGL 102 or other approved Carolina Core INF overlay or stand alone course.

GFL Global Citizenship and Multicultural Understanding: Foreign Language
Score of two or better on foreign language test, or equivalent study of approved Carolina Core GFL course(s).

VSR Values, Ethics and Social Responsibility
PHIL 325 (CMS/VSR overlay), 322; or any approved VSR
ESM Electives (9 hours):
One ESM elective must come from this Science Group — BIOL 101, 102, 110, 250, 270, and 300 or above; ENVR 221/321, 551; GEOL 201, 202, and 300 or above; MSCI courses 300 and above.

Two additional ESM electives from the following: additional ECIV courses from the Distribution and Elective categories; ENCP 290 or above (not 310 or 360); any ECHE course above 320; any ELCT above 201; any EMCH 290 or above (not 310 or 360); any CSCE 211 and above; any PHYS above 212; any GEOL 300 and above; BIOL 101, 102, 110, 250, 300 and above; MSCI 300 and above; any CHEM above 112; MATH 521, 544, 550; STAT 511, NAVY 201, 202, 301; one Project Lead the Way course; ENVR 501.

ECIV Distribution (12 hours): One course from 4 of the following 5 areas
Environmental: ECIV 551, 555, 556, 557, 558
Geotechnical: ECIV 530
Structures: ECIV 325 or 327
Water Resources: ECIV 560 or 562 or 563
Transportation: ECIV 540, 541, 542, or 580

ECIV Electives (12 hours):
ECIV 300, 325, 327, 426, 490, 503, 520, 521, 524, 526, 530, 533, 535, 540, 541, 542, 551, 555, 556, 557, 558, 560, 562, 563, 570, 580, 588.

ECIV Laboratory courses (2 hours):
ECIV 303L, 330L, 350L, 362L.

Curriculum Notes:
Corbetter required in ENGL 101, 102, MATH 141, 142, CHEM 111&L, PHYS 211&L, ECIV 200, 210, and 220.

Professional Development Requirement is satisfied by completing one or more program-accepted Carolina Core courses for CMS, VSR, or by ENGL 462, 463, or SPCH 230.

ENCP 101 can replace ECIV 101
ENCP 102 can replace ECIV 111
ENCP 200 can replace ECIV 200
ENCP 201 can replace ECIV 201
ENCP 210 can replace ECIV 210
ENCP 260 can replace ECIV 220
ENCP 360 can replace ECIV 360

Fall 2016
## COMPUTER ENGINEERING CURRICULUM SHEET | FALL 2016

### FRESHMAN (31)

<table>
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<tbody>
<tr>
<td>CSCE 145 - Intro. Algorithmic Design I</td>
<td>4 CSCE 146 - Intro. Algorithmic Design II</td>
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<tr>
<td>CSCE 190 - Computing in Modern World</td>
<td>1 CSCE 215 - UNIX/Linux Fundamentals</td>
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<tr>
<td>ENGL 101 - CMW: Critical Reading &amp; Comp.</td>
<td>3 ENGL 102 - CMW: Rhetoric &amp; Composition</td>
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<tr>
<td>MATH 141 - ARP: Calculus I</td>
<td>4 MATH 142 - ARP: Calculus II</td>
</tr>
<tr>
<td>CHEM 111&amp;L - SCI: General Chemistry I &amp; Lab</td>
<td>4 ELECTIVE - AIU: Aest. &amp; Intr. Understanding</td>
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### SOPHOMORE (32)

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<tbody>
<tr>
<td>CSCE 211 - Digital Logic Design</td>
<td>3 CSCE 212 - Intro to Comp. Architecture</td>
</tr>
<tr>
<td>CSCE 240 - Intro. to Software Engineering</td>
<td>3 PHYS 212&amp;L - Essentials of Physics II &amp; Lab</td>
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<td>MATH 241 - Vector Calculus</td>
<td>3 MATH 242 - Elem. Differential Equations</td>
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<td>PHYS 211&amp;L - SCI: Essentials of Physics I &amp; Lab</td>
<td>4 CSCE 274 - Robotic Applications &amp; Design</td>
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<tr>
<td>ELCT 102 - Electrical Science</td>
<td>3 ELCT 221 - Circuits</td>
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### JUNIOR (31)

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<td>CSCE 311 - Operating Systems</td>
<td>3 CSCE 313 - Embedded Systems</td>
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<tr>
<td>MATH 374 - Discrete Structures</td>
<td>3 CSCE 317 - Systems Engineering</td>
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<td>ELCT 222 - Signals and Systems</td>
<td>3 CSCE 350 - Data Structures &amp; Algorithms</td>
</tr>
<tr>
<td>SPCH 140 - Public Communication [meets CMS]</td>
<td>3 CSCE 390 - Prof. Issues in CSCE [meets VSR]</td>
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<tr>
<td>STAT 509 - Statistics for Engineers</td>
<td>3 ELCT 371 - Electronics</td>
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<td><strong>15 ENGL 462/3</strong> - Technical/Business Writing</td>
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### SENIOR (31)

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<td>CSCE 611 - Advanced Digital Design</td>
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<td>CSCE xxx - CSCE Elective</td>
<td>3 MATH 344/L - Applied Linear Algebra</td>
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<tr>
<td>ELECTIVE - GSS: Social Science</td>
<td>3 ELECTIVE - GHS: Historical Thinking</td>
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</tbody>
</table>

### ADDITIONAL REQUIREMENTS (0-12)

These additional University requirements may be satisfied through overlay courses, by placement testing, or by stand alone courses beyond the curriculum requirements above.

**INF Information Literacy**
USC’s ENGL 102 or other approved Carolina Core INF overlay or stand alone course.

**GFL Global Citizenship and Multicultural Understanding: Foreign Language**
Score of two or better on foreign language test, or equivalent study of approved Carolina Core GFL course(s).
CSCE Major Electives (9 hours)
CSCE 330, 355, ELCT 321, ELCT 331, and other approved CSCE courses numbered 510 or higher.

Curriculum Notes
C or better is required in ENGL 101, 102, MATH 141, 142, PHYS 211 & L, ELCT 221, and all CSCE courses. CSCE 101 and 102 are not degree applicable. MATH 174 is not a substitute for MATH 374.
# Computer Information Systems Curriculum Sheet - Fall 2016

## Freshman (30)

### FALL
- **CSCE 145** Intro. Algorithmic Design I  
- **CSCE 190** Computing in Modern World  
- **ENGL 101** CMW: Critical Reading & Composition  
- **MATH 122** ARP: Calculus for Bus. Admin. & Soc. S  
- **Science** SCI: Laboratory Science  

### SPRING
- **CSCE 146** Intro. Algorithmic Design II  
- **UNIX/Linux Fundamentals**  
- **CMW: Rhetoric & Composition**  
- **SCI: Laboratory Science**  
- **AIU: Aest. & Intr. Understanding**  

## Sophomore (30)

### FALL
- **CSCE 240** Intro. Software Engineering  
- **CSCE 210** Computer Hardware Foundations  
- **SPCH 140** Public Communication [meets CMS]  
- **ECON 224** Intro. Economics  
- **ELECTIVE** GHS: Historical Thinking  

### SPRING
- **Intro to Computer Security**  
- **ARP: Discrete Math for CS**  
- **Intro. Accounting**  
- **Principles of Management**  
- **GSS: Social Science**  

## Junior (31)

### FALL
- **CSCE 205** Business Application Prog.  
- **CSCE 311** Operating Systems  
- **CSCE 390** Prof. Issues in CSCE [meets VSR]  
- **STAT 515** Statistical Methods I  
- **MGSC 390** Business Info. Systems  
- **ELECTIVE** BIM Minor Elective  

### SPRING
- **Data Structures & Algorithms**  
- **Database System Design**  
- **Statistical Methods II**  
- **Technical Or Bus. Writing**  
- **BIM Minor Elective**  

## Senior (30)

### FALL
- **CSCE 490** Capstone Software Engr Proj I  
- **CSCE 416** Intro. to Computer Networks  
- **CSCE 522** Information Security Principles  
- **MGSC 490** Info. Sys. Analysis & Design  
- **ELECTIVE** Liberal Arts Elective  

### SPRING
- **Capstone Software Engr Proj II**  
- **CSCE Elective**  
- **Info. Systems Development**  
- **Liberal Arts Elective**  
- **Liberal Arts Elective**  

## Additional Requirements (0-12)

These additional University requirements may be satisfied through overlay courses, by placement testing, or by stand alone courses beyond the curriculum requirements above.

### INF Information Literacy
- USC's ENGL 102 or other approved Carolina Core INF overlay or stand alone course.

### GFL Global Citizenship and Multicultural Understanding: Foreign Language
- Score of two or better on foreign language test, or equivalent study of approved Carolina Core GFL course(s).
CSCE Major Elective (3 hours)
CSCE 317 or other approved course numbered 500 or higher

Business Information Management (BIM) minor (24 hours)
Required courses (18 hours):
ACCT 222: Introduction to Accounting
ECON 224: Introduction to Economics
MGMT 371: Principles of Management
MGSC 390: Business Information Systems
MGSC 490: Information Systems Analysis and Design
MGSC 590: E-Commerce Concepts and Research Topics

Electives (6 hours): Choose any two (2) of the following courses:
ACCT 324: Survey of Commercial Law
ECON 311: Issues in Economics (pre-req: ECON 224)
ECON 379: Government Policy Toward Business (pre-req: ECON 224)
FINA 333: Finance and Markets
IBUS 301: Introduction to International Business (pre-req: MKTG 350)
MGMT 472: Entrepreneurship and Small Business (pre-req: MGMT 371)
MKTG 350: Introduction to Marketing
MKTG 351: Consumer Behavior (pre-req: MKTG 350)
MGSC 392: Quantitative Analysis for Business Decision Making (pre-req: MGSC 291)
MGSC 395: Operations Management (pre-req: MKTG 350)
MGSC 594: Strategic Management of Information Systems

Curriculum Notes
C or better is required in ENGL 101, 102, MATH 122, 174, and all CSCE courses.
CSCE 101 and 102 are not degree applicable.
### COMPUTER SCIENCE CURRICULUM SHEET | FALL 2016

#### FRESHMAN (31)

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<tr>
<td>ENGL 101 CMW: Critical Reading &amp; Composition</td>
<td>ENGL 102 CMW: Rhetoric &amp; Composition</td>
</tr>
<tr>
<td>MATH 141 ARP: Calculus I</td>
<td>MATH 142 ARP: Calculus II</td>
</tr>
<tr>
<td>ELECTIVE AIU: Aest. &amp; Intr. Understanding</td>
<td>Science SCI: Lab Sci (CHEM or PHYS)</td>
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#### SOPHOMORE (32)

<table>
<thead>
<tr>
<th>FALL</th>
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<tbody>
<tr>
<td>CSCE 211 Digital Logic Design</td>
<td>CSCE 212 Intro to Comp. Architecture</td>
</tr>
<tr>
<td>CSCE 240 Intro. to Software Engineering</td>
<td>Science Laboratory Science</td>
</tr>
<tr>
<td>MATH 374 Discrete Structures</td>
<td>MATH 241 Vector Calculus</td>
</tr>
<tr>
<td>SPCH 140 Public Communication [meets CMS]</td>
<td>ELECTIVE GSS: Social Science</td>
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<tr>
<td>Science</td>
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#### JUNIOR (31)

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>CSCE 311 Operating Systems</td>
<td>CSCE 416 Intro to Computer Networks</td>
</tr>
<tr>
<td>CSCE 330 Prog. Language Structures</td>
<td>STAT 509 Statistics for Engineers</td>
</tr>
<tr>
<td>CSCE 350 Data Structures &amp; Algorithms</td>
<td>ELECTIVE Liberal Arts Elective</td>
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<tr>
<td>CSCE 390 Prof. Issues in CSCE [meets VSR]</td>
<td>ELECTIVE Liberal Arts Elective</td>
</tr>
<tr>
<td>ENGL 462/3 Technical or Bus Writing</td>
<td>Application Area Elective</td>
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#### SENIOR (28)

<table>
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<tr>
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<tbody>
<tr>
<td>CSCE 490 Capstone Software Engr Proj I</td>
<td>CSCE 492 Capstone Software Engr Proj II</td>
</tr>
<tr>
<td>CSCE 355 Fundamentals of Computation</td>
<td>CSCE xxx CSCE Elective</td>
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<tr>
<td>CSCE xxx CSCE Elective</td>
<td>CSCE xxx CSCE Elective</td>
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<tr>
<td>MATH 344/L Applied Linear Algebra w/Lab</td>
<td>ELECTIVE Liberal Arts Elective</td>
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<td>Application</td>
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</table>

#### ADDITIONAL REQUIREMENTS (0-12)

These additional University requirements may be satisfied through overlay courses, by placement testing, or by stand alone courses beyond the curriculum requirements above.

**INF Information Literacy**

USC's ENGL 102 or other approved Carolina Core INF overlay or stand alone course.

**GFL Global Citizenship and Multicultural Understanding: Foreign Language**

Score of two or better on foreign language test, or equivalent study of approved Carolina Core GFL course(s).
CSCE Major Electives (9 hours)
CSCE 317 or any CSCE course 510 or higher

Application Area (9 hours)
See the CSCE department website for application area / cluster information.
A minor (18 hours) can replace the application area electives.

Curriculum Notes
C or better is required in ENGL 101, 102, MATH 141, 142, CHEM 111 or PHYS 211 & L, and all CSCE courses. MATH 174 is not a substitute for MATH 374. CSCE 101 and 102 are not degree applicable.

SCI: Scientific Literacy (12 hours)
Must include either CHEM 111 & L and CHEM 112 & L or PHYS 211 & L and PHYS 212 & L. An additional 4 hours must be selected from the following list: BIOL 101 & L, CHEM 111 & L, PHYS 211 & L, GEOL 101, 201, 302, or MSCI 101, 102.
### FRESHMAN (35)

<table>
<thead>
<tr>
<th>FALL</th>
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<tbody>
<tr>
<td>ELCT 101*</td>
<td>ELCT 102*</td>
</tr>
<tr>
<td>Electrical &amp; Electronics Engr.</td>
<td>Electrical Science</td>
</tr>
<tr>
<td>CHEM 111 &amp;L*</td>
<td>PHYS 211 &amp;L*</td>
</tr>
<tr>
<td>SCI: General Chemistry I and Lab</td>
<td>SCI: Essentials of Physics I &amp; Lab</td>
</tr>
<tr>
<td>ENGL 101*</td>
<td>ENGL 102*</td>
</tr>
<tr>
<td>CMW: Critical Reading &amp; Comp.</td>
<td>CMW: Rhetoric &amp; Composition</td>
</tr>
<tr>
<td>MATH 141*</td>
<td>MATH 142*</td>
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<tr>
<td>ARP: Calculus I</td>
<td>ARP: Calculus II</td>
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<tr>
<td>ELECTIVE</td>
<td>CSCE 145*</td>
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<tr>
<td>AIU: Aest. &amp; Intr. Understanding</td>
<td>Intro Algorithmic Design I</td>
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### SOPHOMORE (35 or 36)

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>CSCE 211*</td>
<td>CSCE 212*</td>
</tr>
<tr>
<td>Digital Logic Design</td>
<td>Intro. Computer Architecture</td>
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<tr>
<td>ENGR ELCT</td>
<td>EMCH 220</td>
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<tr>
<td>CSCE 146/EMCH 201/PHYS 306</td>
<td>Intro. To Mechanical Engr.</td>
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<tr>
<td>ELCT 221*</td>
<td>ELCT 201*</td>
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<tr>
<td>Circuits</td>
<td>Introductory EE Lab</td>
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<tr>
<td>PHYS 212 &amp;L*</td>
<td>ELCT 222*</td>
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<tr>
<td>Essentials of Physics II &amp; Lab</td>
<td>Signals and Systems</td>
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<tr>
<td>MATH 242*</td>
<td>MATH 241*</td>
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<tr>
<td>Elem. Differential Equations</td>
<td>Vector Calculus</td>
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### JUNIOR (33)

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<tbody>
<tr>
<td>ELCT 301</td>
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<tr>
<td>Electronics Laboratory</td>
<td>Control Systems Laboratory</td>
</tr>
<tr>
<td>ELCT 321</td>
<td>ELCT 331</td>
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<tr>
<td>Digital Signal Processing</td>
<td>Control Systems</td>
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<tr>
<td>ELCT 363</td>
<td>ELCT 350</td>
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<tr>
<td>ELCT 371</td>
<td>ELCT 361</td>
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<tr>
<td>Electronics</td>
<td>Electromagnetics</td>
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<tr>
<td>ECON 421</td>
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<tr>
<td>Engineering Economics</td>
<td>GHS: Historical Thinking</td>
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### SENIOR (24)

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<tr>
<td>ELCT 403</td>
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<tr>
<td>Capstone Design Project I</td>
<td>Capstone Design Project II</td>
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<tr>
<td>Career</td>
<td>Career</td>
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<tr>
<td>Plan Elective</td>
<td>Plan Elective</td>
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<td>Career</td>
<td>Plan Elective</td>
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<td>Plan Elective</td>
<td>Plan Elective</td>
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<tr>
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### ADDITIONAL REQUIREMENTS (0-12)

These additional University requirements may be satisfied through overlay courses, by placement testing, or by stand alone courses beyond the curriculum requirements above.

- CMS Effective, Engaged, and Persuasive Communication: Spoken Component
  PHIL 325 (CMS/VSR overlay) or any approved overlay or stand-alone Carolina Core CMS course.

- INF Information Literacy
  USC's ENGL 102 or any approved overlay or stand-alone Carolina Core course for INF.

- GFL Global Citizenship and Multicultural Understanding: Foreign Language
  Score of two or better on foreign language test, or equivalent study of approved Carolina Core GFL course(s).

* Indicates a lower division course to be completed before junior level courses.
Career Plan Electives (15 hrs)
The student, in consultation with his or her advisor, will select 15 hours of electives, that support the student's defined career plan. Not more than 6 hours of these electives may be from another discipline, and all must be at or above the 300-level.

Curriculum Notes
C or better is required in ENGL 101,102, MATH 141, 142, PHYS 211 & Lab, ELCT 221, CSCE 145, CSCE 211.
<table>
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</thead>
<tbody>
<tr>
<td>FRESHMAN (35)</td>
<td>EMCH 101: Intro. To Mechanical Engr</td>
<td>3 EMCH 111: Graphics &amp; Visualization</td>
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<tr>
<td></td>
<td>CHEM 111 &amp; L: SCI: General Chemistry I &amp; Lab</td>
<td>4 CHEM 112 &amp; L: General Chemistry II &amp; Lab</td>
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<td></td>
<td>ENGL 101: CMW: Critical Reading &amp; Comp.</td>
<td>3 ENGL 102: CMW: Rhetoric &amp; Composition</td>
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<td></td>
<td>MATH 141: ARP: Calculus I</td>
<td>4 MATH 142: ARP: Calculus II</td>
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<td>ELECTIVE: AIU: Aest. &amp; Intr. Understanding</td>
<td>3 PHYS 211 &amp; L: SCI: Essentials of Physics I &amp; lab</td>
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<tr>
<td>SOPHOMORE (31)</td>
<td>EMCH 200: Statics</td>
<td>3 EMCH 290: Thermodynamics Fund.</td>
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<td></td>
<td>MATH 241: Vector Calculus</td>
<td>3 ELCT 220: Circuits I</td>
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<tr>
<td></td>
<td>PHYS 212 &amp; L: Essentials of Physics II &amp; lab</td>
<td>4 EMCH 361: EMCH Lab I</td>
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<td></td>
<td>STAT 509: Statistics for Engineers</td>
<td>3 MATH 242: Elem. Differential Equations</td>
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<tr>
<td>JUNIOR (30)</td>
<td>EMCH 310: Dynamics</td>
<td>3 EMCH 330: Mechanical Vibrations</td>
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<td></td>
<td>EMCH 327: Design Mech. Elements</td>
<td>3 EMCH 332: Kinematics &amp; Dynamics</td>
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<td>EMCH 360: Fluids</td>
<td>3 EMCH 354: Heat Transfer</td>
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<td>EMCH 362: EMCH Lab II</td>
<td>3 EMCH 363: EMCH Lab III</td>
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<tr>
<td>SENIOR (30)</td>
<td>EMCH 377: Manufacturing Processes</td>
<td>3 EMCH 428: Mechanical Design II</td>
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<td>EMCH 427: Mechanical Design I</td>
<td>3 EMCH ELCT: EMCH Elective</td>
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<td>EMCH ELCT: EMCH Elective</td>
<td>3 EMCH ELCT: EMCH Elective</td>
<td>3</td>
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<tr>
<td></td>
<td>ELECTIVE: Technical Elective</td>
<td>3 ELECTIVE: VSR: Values, Ethics, Soc.Res.</td>
<td>3</td>
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<tr>
<td></td>
<td>ELECTIVE: GSS: Social Science</td>
<td>3 ELECTIVE: GHS: Historical Thinking</td>
<td>3</td>
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<tr>
<td>ADDITIONAL REQUIREMENTS (0-12)</td>
<td>These additional University requirements may be satisfied through overlay courses, by placement testing, or by stand</td>
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<tr>
<td></td>
<td>CMS Effective, Engaged, and Persuasive Communication: Spoken Component</td>
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<td></td>
<td>PHIL 325 (CMS/VSR overlay) or SPCH 140</td>
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<td></td>
<td>INF Information Literacy</td>
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<td></td>
<td>USC’s ENGL 102 or other approved Carolina Core INF overlay or stand alone course.</td>
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<td></td>
<td>GFL Global Citizenship and Multicultural Understanding: Foreign Language</td>
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<td>Score of two or better on foreign language test, or equivalent study of approved Carolina Core GFL course(s).</td>
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<tr>
<td></td>
<td>VSR Values, Ethics, and Social Responsibility</td>
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<tr>
<td></td>
<td>SAEL 200 (CMS/VSR overlay), PHIL 325 (CMS/VSR overlay), HIST 108 (VSR/GHS overlay), PHIL 103, 211, 320, 321, 322.</td>
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</table>
Technical Elective (3 hours)
Choose from any EMCH elective or from a list of acceptable technical elective courses that is maintained in the department office and on its website.

Mechanical Engineering Electives (9 hours)

**Design/Manufacturing**
- EMCH 507-Computer Aided Design
- EMCH 508-Finite Element Analysis
- EMCH 509-Computer Aided Manufacturing
- EMCH 516-Control Theory in ME
- EMCH 521-Concurrent Engineering
- EMCH 522-Design for Manufacture & Assembly
- EMCH 527-Design Of Mechanical Systems
- EMCH 528-Product Safety Engineering
- EMCH 529-Sustainable Design & Dev.
- EMCH 535-Robotics in Mechanical Engineering

**Thermal-Fluid Systems**
- EMCH 497-Design Thermal Systems
- EMCH 544-Compressible Fluid Flow
- EMCH 554-Inter. Heat Transfer
- EMCH 560-Inter. Fluid Mechanics
- EMCH 592-Introduction Combustion
- EMCH 594-Solar Heating
- EMCH 597-Thermal Environmental Eng.

**Mechanics of Solids**
- EMCH 308-Finite Element Stress Anal.
- EMCH 532-Intermediate Dynamics
- EMCH 586-Exp. Stress Analysis

**Aerospace Engineering**
- EMCH 508-Finite Element Analysis
- EMCH 516-Control Theory in ME
- EMCH 522-Design for Manufacture & Assembly
- EMCH 532-Intermediate Dynamics
- EMCH 544-Compressible Fluid Flow
- EMCH 554-Inter. Heat Transfer
- EMCH 560-inter. Fluid Mechanics
- EMCH 571-Mechanical Behavior of Materials
- EMCH 575-Adaptive Material Sys. & Structures
- EMCH 577- Aerospace Structures I
- EMCH 578-Intro to Aerodynamics
- EMCH 585-Nature of Composite Materials
- EMCH 592-Introduction Combustion

**Nuclear Engineering**
- EMCH 552-Intro. Nuclear Engineering
- EMCH 553-Nuclear Fuel Cycle
- EMCH 555-Inst. for Nuclear Engineering
- EMCH 556-Intro to Risk Analy. & Reactor Safety
- EMCH 557-Intro to Radiation Shielding
- EMCH 558-Intro to Nuclear Reactor Systems
- EMCH 573-Intro to Nuclear Materials

**Other Approved EMCH Electives**
- EMCH 441-Automotive System Fundamentals
- EMCH 460-Special Problems
- EMCH 501-Engineering Analysis I
- EMCH 502-Engineering Analysis II
- EMCH 561-Current Topics
- EMCH 562-Micro/nanofluidics and Lab-On-A-Chip
- EMCH 580-Mechanics of Solid Biomaterials

Curriculum Notes
C or better is required in ENGL 101, 102, MATH 141, 142, CHEM 111 & L, PHYS 211 & L, EMCH 200.

Fall 2016
<table>
<thead>
<tr>
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<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
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<tr>
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<td>8:30am-9:45am</td>
<td>8:05am-9:20 am OR 8:30am-9:20am</td>
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Carolina Core Courses for Academic Year 2016-2017

The following lists are approved Carolina Core courses to select from to meet the Carolina Core components of AIU, GHS, and GSS. See the Carolina Core website for updates: www.sc.edu/carolinacore/courses.php

**AIU: Aesthetics and Interpretive Understanding (fine arts)**
- ARTE 101: Introduction to Art
- ARTE 260: Interdisciplinary Relationships in the Arts
- ARTH 105: History of Western Art
- ARTH 106: History of Western Art
- ARTS 103: Fundamentals of Art
- ARTS 104: 3-Dimensional Design I
- ARTS 210: Introduction to Painting
- CLAS 220: Introduction to Classical Mythology
- CPLT 150: Values & Ethics in Literature
- CPLT 270: World Literature
- ENGL 270: World Literature
- ENGL 282: Fiction
- ENGL 283: Themes in British Writing
- ENGL 284: Drama
- ENGL 285: Themes in American Writing
- ENGL 286: Poetry
- ENGL 287: American Literature
- ENGL 288: English Literature
- FAMS 110: Media Culture
- FAMS 180: Film Culture
- FAMS 240: Introduction to Film and Media Studies
- FREN 290: French Literature in Translation
- GERM 270: Knights and Ladies
- GERM 290: Viking Mythology
- MART 110: Media Culture
- MART 210: Digital Media Arts Fundamentals
- MUSC 110: Introduction to Music
- MUSC 113: Special Topics in Popular Music
- MUSC 114: Introduction to Music Theory
- MUSC 115: Music Theory I
- MUSC 140: Jazz and American Popular Music
- MUSC 310: Selected Topics in Music
- RELG 270: Religion and the Arts
- RUSS 280: Introduction to Russian Civilization
- SOST 101: The Literary South
- SPAN 220: Selected Works of Hispanic Literature in English Translation
- THEA 170: Fundamentals of Acting
- THEA 181: Shakespeare in Performance
- THEA 200: Understanding and Appreciation of Theatre

**ARP: Analytical Reasoning & Problem Solving**
- CSCE 101: Introduction to Computer Concepts
- CSCE 102: General Applications Programming
- CSCE 145: Algorithmic Design I
- GEOG 105: The Digital Earth
- MATH 122: Calculus for Business Administration & Social Science
- MATH 141: Calculus I
- MATH 142: Calculus II
- MATH 170: Finite Mathematics
- MATH 172: Mathematical Modeling for the Life Sciences
- MATH 174: Discrete Mathematics for Computer Science
PHIL 110: Introduction to Logic I
PHIL 111: Inductive Logic
PHIL 114: Introduction to Formal Logic I
PHIL 115: Introduction to Formal Logic II
STAT 110: Introduction to Statistical Reasoning
STAT 112: Statistics and the Media (ARP and INF)
STAT 201: Elementary Statistics
STAT 205: Elementary Statistics for the Biological and Life Sciences
STAT 206: Elementary Statistics for Business

CMW: Communication-Writing
ENGL 101: Critical Reading and Composition
ENGL 102: Rhetoric and Composition

GHS: Global Citizenship and Multicultural Understanding: Historical Thinking (history)
FILM 300: Film and Media History
GERM 280: German Culture and Civilization
HIST 101: European Civilization from Ancient Times to the Mid-17th Century
HIST 102: European Civilization from the Mid-17th Century
HIST 103: Introduction to South Asian History
HIST 104: Introduction to the Civilization of the Islamic Middle East
HIST 105: Introduction to East Asian Civilization
HIST 106: Introduction to African History
HIST 108: Science and Technology in World History (overlay with VSR)
HIST 109: Introduction to Latin American Civilization
HIST 111: United States History to 1865
HIST 112: United States History since 1865
HIST 214: The Practice of Public History

GSS: Global Citizenship and Multicultural Understanding: Social Sciences (social science)
AFAM 201: Introduction to African American Studies: Social & Historical Foundations
ANTH 101: Primates, People, and Prehistory
ANTH 102: Understanding Other Cultures
ANTH 204: Plagues Past and Present
ANTH 210: Human Life Cycle in Different Cultures
ANTH 211: Learning Across Cultures
COLA 298: Interdisciplinary Special Topics in the Liberal Arts: Social Sciences
CRJU 101: The American Criminal Justice System
EDUC 360X: Global & Multicultural Perspectives on Education in International Settings
GEOG 103: Introduction to Geography
GEOG 121: Lands and People of the World
GEOG 210: People, Places, and Environments
GEOG 221: Geography of South Carolina
GEOG 223: Geography of Latin America
GEOG 224: Geography of North America
GEOG 225: Geography of Europe
GEOG 226: Geography of the Middle East
GEOG 228: Geography of Sub-Saharan Africa
HRTM 280: Foundations of Tourism
LASP 331: Geography of Latin America
LING 101: Linguistics 1: Introduction to Linguistics
POLI 101: Controversies in World Politics
POLI 201: American National Government
PSYC 101: Introduction to Psychology
RELG 101: Exploring Religion
SOCY 101: Introductory to Sociology
WGST 112: Women in Society
WGST 113: Women’s Health
WGST 210: Human Life Cycle in Different Cultures
GFL: Global Citizenship and Multicultural Understanding—Foreign Language

ARAB 121: Elementary Arabic
ARAB 122: Basic Arabic Proficiency
CHIN 121: Elementary Chinese Mandarin
CHIN 122: Basic Proficiency in Mandarin Chinese
FREN 109: Beginning French I
FREN 110: Beginning French II
FREN 121: Elementary French
FREN 122: Basic Proficiency in French
GERM 109: Beginning German I
GERM 110: Beginning German II
GERM 121: Elementary German
GERM 122: Basic Proficiency in German
GREK 121: Elementary Ancient Greek I
GREK 122: Elementary Ancient Greek II
ITAL 121: Elementary Italian
ITAL 122: Basic Proficiency in Italian
JAPA 121: Elementary Japanese
JAPA 122: Basic Proficiency in Japanese
LATN 109: Beginning Latin I
LATN 110: Beginning Latin II
LATN 121: Elementary Latin
LATN 122: Basic Proficiency in Latin
PORT 121: Elementary Portuguese
PORT 122: Basic Proficiency in Portuguese
RUSS 121: Elementary Russian
RUSS 122: Basic Proficiency in Russian
SPAN 109: Beginning Spanish I
SPAN 110: Beginning Spanish II
SPAN 111: Intensive Beginning Spanish
SPAN 121: Elementary Spanish
SPAN 122: Basic Proficiency in Spanish
SPAN 130: Accelerated Basic Proficiency in Spanish

SCI: Scientific Literacy
ANTH 161: Human Origins: An Introduction to Biological Anthropology
ASTR 101: Introduction to Astronomy
ASTR 201: Introduction to Astronomy II – The Dark Universe
BIOL 101: Biological Principles I
BIOL 101L: Biological Principles I Lab
BIOL 102: Biological Principles II
BIOL 102L: Biological Principles II Lab
BIOL 110: General Biology
BIOL 120: Human Biology
BIOL 120L: Human Biology Lab
BIOL 206: Genetics & Society
BIOL 208: Our Hungry World: from Malthus to McDonalds
BIOL 243: Human Anatomy & Physiology I
BIOL 243L: Human Anatomy & Physiology I Lab
BIOL 244: Human Anatomy & Physiology II
BIOL 244L: Human Anatomy & Physiology II Lab
BIOL 270: Introduction to Environmental Biology
BIOL 270L: Introduction to Environmental Biology Lab
CHEM 101: Fundamental of Chemistry I
CHEM 102: Fundamentals of Chemistry II
CHEM 105: Chemistry & Modern Society I
CHEM 107: Forensic Chemistry
CHEM 111: General Chemistry I
CHEM 111L: General Chemistry I Lab
CHEM 141: Principles of Chemistry I (Honors Course)
ENVR 101: Introduction to the Environment
ENVR 101L: Introduction to the Environment Lab
ENVR 200: Natural History of South Carolina
GEOG 104: Introduction to Physical Geography
GEOG 201: Landform Geography
GEOG 202: Weather and Climate
GEOL 101: Introduction to the Earth
GEOL 103: Environmental Geology
GEOL 110: Cultural Geology
GEOL 205: Earth Resources
GEOL 215: Coastal Environments of the Southeastern US
GEOL 215L: Coastal Environments of the Southeastern US Lab
GEOL 230: Geology of the National Parks
MSCI 101: The Ocean Environment
MSCI 102: The Living Ocean
MSCI 210: Oceans and Society
MSCI 210L: Oceans and Society Lab
MSCI 215: Coastal Environments of the Southeastern US
MSCI 215L: Coastal Environments of the Southeastern US Lab
PHYS 201: General Physics I
PHYS 201L: General Physics I Lab
PHYS 202: General Physics II
PHYS 202L: General Physics II Lab
PHYS 211: Essentials of Physics I
PHYS 211L: Essentials of Physics I Lab
PHYS 212: Essentials of Physics II
PHYS 212L: Essentials of Physics II Lab

CMS: Effective, Engaged, and Persuasive Communication (Speech)
PHIL 213 Communicating Moral Issues (CMS and VSR)
PHIL 325: Engineering Ethics (CMS and VSR)
SAEL 200: Social Advocacy and Ethical Life (CMS and VSR)
SPCH 140: Public Communication
SPCH 213: Communicating Moral Issues (CMS and VSR)
SPCH 230: Business and Professional Speaking
SPCH 260: Argumentation and Debate

INF: Information Literacy
ENGL 102: Rhetoric and Composition
LIBR 101: Information Literacy
SLIS 202: Introduction to Information Literacy and Technology
STAT 112: Statistics and the Media

VSR: Values, Ethics, and Social Responsibility (Ethics)
BIOL 208: Our Hungry World (VSR and SCI)
CPLT 150: Values & Ethics in Literature (VSR and AIU)
CSCE 390: Professional Issues in Computer Science and Engineering
HIST 108: Science and Technology in World History (VSR and GHS)
LING 240: Language Conflict and Language Rights
PHIL 103: Special Topics in Ethics and Values
PHIL 211: Contemporary Moral Issues
PHIL 213: Communicating Moral Issues (VSR and CMS)
PHIL 320: Ethics
PHIL 321: Medical Ethics
PHIL 322: Environmental Ethics
PHIL 324: Business Ethics
PHIL 325: Engineering Ethics (VSR and CMS)
POLI 201: American National Government (VSR and GSS)
POLI 302: Classical & Medieval Political Theory
POLI 303: Modern Political Theory
POLI 304: Contemporary Political Theory
RELG 205: Morality, Ethics, and Religion
SAEL 200: Social Advocacy and Ethical Life (VSR and CMS)
SPCH 213: Communicating Moral Issues (VSR and CMS)
WGST 112: Women in Society (VSR and GSS)