**2020-2021 catalog**

**Student Name ____________________________ TTU ID ____________________________ Date ____________**

**Email Address ____________________________ ADVISING FOR ________ (e.g., fall 2020)**

**Students:** For courses taken at TTU, put the grade received next to the course. For transfer credit, use T and the grade received (ex. TB).

**Advisors:** Indicate the courses to be taken in the following semester by circling the courses. For courses that you are currently enrolled in and expect to pass, use an R next to that course.

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### FIRST YEAR

**Fall**
- ENGL 1301, Ess. Coll. Rhetoric
- MATH 1451, Calc. I
- CHEM 1307 & 1107, Prin. of Chem. I
- ENGR 1110 Engineering Seminar
- ENGR 1330, Comp. Thinking/Data Sc.

**Spring**
- MATH 1452, Calc. II
- ENGR 1320, Bio-Inspired Design
- ENGR 2392, Engr. Ethics (LPC)
- PHYS 1408, Prin. of Phys.

### SECOND YEAR

**Fall**
- MATH 2450, Calc. III
- CHEM 1308 & 1108, Prin. Of Chem. II
- CH E 2310, Intro. to Chem. Proc.
- PHYS 2401, Prin. of Phys. II

**Spring**
- CH E 3315, Fluid Mechanics
- CHEM 3305 & 3105, O-Chem I

### THIRD YEAR

**Fall**
- CH E 2306, Expos. Tech. Info (Oral Comm)
- CH E 3326, Heat Transfer
- CH E 3322, Chem. Eng. Thermo. II
- IE 2324, Engr. Econ. Analysis(Soc/Behavior)

**Spring** (Apply for Grad School)
- CH E 3232, Transport Lab.
- CH E 3341, Mass-Trans. Oper.
- CH E 3323, Chem. Reaction Eng.

### FOURTH YEAR

**Fall**
- CH E 4232, Unit Oper. Lab.
- CH E 4353, Process Control
- CH E 4322, CHE Review
- CH E graduate core course
- CH E graduate seminar

**Spring**
- CH E 4356, Process Safety
- CH E graduate core course
- CH E graduate seminar

***Research might be required for summer – consult faculty mentor***

### FIFTH YEAR

**Fall**
- CH E graduate core course
- CH E graduate core course
- CH E graduate elective
- CH E graduate elective
- CH E research (3 hours)
- CH E graduate seminar

**Spring**
- CH E graduate elective
- CH E graduate elective
- CH E research (3 hours)

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**Additional Requirements for BS - Indicate the Course (ex. ART 1309) as well as the grade.**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Course</th>
<th>Grade</th>
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<tbody>
<tr>
<td>American History (6 hrs)</td>
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<tr>
<td>Political Science (6 hrs)</td>
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<tr>
<td>Chemistry Electives (6 hrs lecture,</td>
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<td>1 hr. lab)</td>
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<tr>
<td>Int’l Experience - Completed _________</td>
<td>Exempt _________ 18-hr rule ___ 3 engr repeats ___ 2 attempts per course ___</td>
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<tr>
<td>Foreign language – 2 yrs HS ________</td>
<td>Exempt _________ 18-hr rule ___ 3 engr repeats ___ 2 attempts per course ___</td>
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</tbody>
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**Additional Comments:**

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**Advisor Signature ____________________________ Student Signature ____________________________ Date ____________**

*Return Form to Kristina Thompson (CHE 211) For Hold Removal*
Polymer and Materials Minor

Minimum of six courses.

Two courses are required:

- CH E 4344 Polym./Mat. Lab.
- CH E 3330 Materials Sci.

Plus four courses chosen from the following list with two in another department:

- CHEM 3306 Organic Chem. II
- CHEM 4310 Polymer Chem.
- CH E 4340 Polymer Proc.
- CH E 4341 Polymerization Eng.
- CH E 4342 Polymer Physics/Eng.
- CH E 4346 Polymer Viscoelasticity
- CH E 4393 Colloid Science/Engr.
- CH E 4394 Soft Materials
- E E 4381 VLSI Processing

Math Minor

Minimum of six courses.

Three courses are required:

- MATH 1451 Calc. I
- MATH 1452 Calc. II
- MATH 2450 Calc. III

One elective is required for the BS Ch E degree:

- MATH 3350 or 3354 Diff. Eqns. I

Plus six hours of approved courses (the following are recommended, others may be taken - see the Math Dept. for all options); for graduate school in Ch E, MATH 3351 or 4354 is recommended:

- MATH 2360 Linear Algebra
- MATH 3351 Higher Math for Eng. II
- MATH 4354 Diff. Eqns. II

Bioengineering Minor

Minimum of seven courses required.

Three courses are required:

- BIOL 1403 Biology I (Fall)
- CHEM 1308/1108 Prin. Chem II (Fall or Spr)

Plus one of the following:

- BIOL 1404 Biology II (Spring)
- CHEM 3306/3106 Organic Chem. II & Lab**
- MBIO 3400 Microbiology

Plus one of the following core bioengineering courses:

- CH E 4363 Biochemical Engineering**
- ECE 5356 Bioinstrumentation/Biosensors

Plus two of the following (note must not include core course):

- CH E 4363 Biochemical Engineering(if not used as core)
- CH E 4364 Ch E Appl. in Biological Systems**
- CH E 4365 Biotransport**
- CH E 4366 Biomicrofluidics**
- CH E 4385 Bioprocess Control**
- CS 3368 Artificial Intelligence
- CS 4379 Concurrent and Parallel Programming
- CS 5393 Bioinformatics
- ECE 4367 Image Processing
- ECE 5351 Biomedical Signal Processing
- ECE 5355 Genomic Signal Processing and Control
- ECE 5356 Bioinstrumentation/Biosensors (if not used as core)
- ENV E 3309 Environmental Engineering
- ENV E 4385 Microbial Apps. in Envir. Engineering
- ENV E 4399 Bio. Municipal Wastewater Treatment
- IE 3361 Work Analysis and Design
- IE 4361 Engineering Design for People
- IE 4362 Industrial Ergonomics
- IE 4363 Work and Product Safety Engineering
- MBIO 3401 Principles of Microbiology (Fall or Spring):
  OR CHEM 3310 Molecular Biochemistry;
  OR BIOL 3320 Cell Biology

*On catalog before 2013-2014, a statistics course is required: MATH 3342 or IE 3341 or CHE 4372

** Denotes courses preferred for CH E Majors