MATERIALS SCIENCE, COMPREHENSIVE MAJOR

University Requirements

GRADUATION REQUIREMENTS FOR BACCALAUREATE DEGREE

Credit Requirements

<table>
<thead>
<tr>
<th>Credit Requirement</th>
<th>Minimum Total Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum total for graduation</td>
<td>120</td>
</tr>
<tr>
<td>Upper division credits (courses numbered 300 and higher)</td>
<td>39</td>
</tr>
<tr>
<td>Liberal Education Core</td>
<td>36</td>
</tr>
</tbody>
</table>

Academic Concentrations

Grade Point Requirements

<table>
<thead>
<tr>
<th>Grade Point Requirement</th>
<th>Minimum Grade Point Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>2.00 average</td>
</tr>
<tr>
<td>Resident</td>
<td>2.00 average</td>
</tr>
<tr>
<td>Major</td>
<td>2.00 average</td>
</tr>
<tr>
<td>Minor</td>
<td>2.00 average</td>
</tr>
<tr>
<td>Certificate</td>
<td>2.00 average</td>
</tr>
</tbody>
</table>

University Residency Requirements

<table>
<thead>
<tr>
<th>Credit Requirement</th>
<th>Minimum Total Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum total</td>
<td>30</td>
</tr>
<tr>
<td>Senior year</td>
<td>23</td>
</tr>
<tr>
<td>Major, Standard, upper division in residence</td>
<td>12</td>
</tr>
<tr>
<td>Major, Comprehensive, upper division in residence</td>
<td>21</td>
</tr>
<tr>
<td>Certificate</td>
<td>25 percent of credits</td>
</tr>
</tbody>
</table>

Procedures Required for Graduation

Obtain admission to the degree program and/or the College offering it.

Apply for graduation on CampS.

1 Certain programs exceed this minimum.

2 See special requirements in each College.

Applicability of Credits Toward Graduation

Junior College or Two-Year College Credits. A maximum of 72 semester credits earned in a junior college or two-year college will be accepted as degree credits at UW-Eau Claire.

Extension Credits. Credits earned in credit outreach courses offered by UW-Eau Claire are treated as resident credits. Credits earned in extension courses offered by other units of the University of Wisconsin System are treated as transfer credits. All other (non-UW) extension and correspondence credits are normally limited to one-fourth of the total required for graduation from any curriculum.

WTCS Credits. A maximum of 72 semester credits earned in college parallel programs at Madison Area Technical College, Milwaukee Area Technical College, Nicolet Area Technical College, or Chippewa Valley Technical College may be accepted as degree credits at UW-Eau Claire. A set number of general education courses will be accepted from other technical schools. Occupational and technical courses may also be considered for transfer if the quality and content of the course work from the technical college is judged to be comparable to course work at UW-Eau Claire. Refer to the Transfer Credit Wizard (https://my.uwec.edu/psp/PUBLIC/EMPLOYEE/HRMS/c/EAU_SS_CUSTOM.EAU_TRNCRDWZ.GBL) or contact the UW-Eau Claire Admissions Office for information about the current transfer policy.

USAFI Credit. UW-Eau Claire will accept up to 32 semester credits for work done through the United States Armed Forces Institute, under the provision for non-UW correspondence credit (see Extension Credits above).

Activity Credit (band, chorus, drama, KINS 100-184 courses) Students may count toward graduation no more than one credit of KINS 110-184 courses.

Students may count toward graduation no more than four credits earned in any single activity course and no more than 12 credits resulting from any combination of activity courses (excluding KINS 110-184 courses).

Other Restricted Credits. For other University restrictions, see the following: Cooperative Education; Credit by Examination; Satisfactory/Unsatisfactory Registration; Transfer of Credits. College or departmental restrictions may also be placed on Independent Study (399-499 courses), Directed Study (395-495), and other types of credits.

APPLICABILITY OF CREDITS TOWARD GRADUATION Credit Restrictions

<table>
<thead>
<tr>
<th>Credit Restriction</th>
<th>Total Degree Credit Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfactory/Unsatisfactory</td>
<td>maximum 12</td>
</tr>
<tr>
<td>Major, Standard</td>
<td>maximum 1 course</td>
</tr>
<tr>
<td>Major, Comprehensive</td>
<td>maximum 2 courses</td>
</tr>
<tr>
<td>Credit by Examination</td>
<td>maximum ¼ of total</td>
</tr>
<tr>
<td>Major or minor</td>
<td>maximum ½ of total</td>
</tr>
<tr>
<td>Two-Year College Credits</td>
<td>maximum 72 credits</td>
</tr>
<tr>
<td>Activity credit (band, chorus, drama, KINS 100-184)</td>
<td>maximum 1 credit</td>
</tr>
<tr>
<td>Total KINS 100-184</td>
<td>maximum 12 credits</td>
</tr>
<tr>
<td>Total Band, chorus, drama</td>
<td>maximum 4 credits</td>
</tr>
<tr>
<td>Extension credits</td>
<td>no maximum</td>
</tr>
<tr>
<td>UWF System</td>
<td>maximum ¼ of total</td>
</tr>
<tr>
<td>Other extension/correspondence</td>
<td>maximum 32 credits</td>
</tr>
</tbody>
</table>

USAFI

USAFI | maximum 32 credits |

Liberal Education Core

The University of Wisconsin-Eau Claire measures learning outcomes to ensure that its graduates have achieved a liberal education and prepared themselves to contribute to a complex society. Upon graduation, each undergraduate will have met the four learning goals of our liberal education core and the 11 learning outcomes they comprise.

LIBERAL EDUCATION CORE REQUIREMENTS a minimum of 36 credits
Knowledge Goal

Knowledge Outcome 1 (K1): Natural Sciences
Two (2) learning experiences

One experience in laboratory science must be selected from either K1 or K2.

Knowledge Outcome 2 (K2): Social Sciences
Two (2) learning experiences

One experience in laboratory science must be selected from either K1 or K2.

Knowledge Outcome 3 (K3): Humanities
Two (2) learning experiences

Knowledge Outcome 4 (K4): Fine Arts
One (1) learning experience

Skills Goal

Skills Outcome 1 (S1): Written and Oral Communication
Two (2) learning experiences

One S1 must meet the University Writing Requirement

Skills Outcome 2 (S2): Mathematics
One (1) learning experience

One S2 to meet the University Mathematics Requirement

Skills Outcome 3 (S3): Creativity
One (1) learning experience

Responsibility Goal

Responsibility Outcome 1 (R1): Equity, Diversity, and Inclusivity
Two (2) learning experiences

One R1 must satisfy Design for Diversity

Responsibility Outcome 2 (R2): Global Perspectives
One (1) learning experience

Responsibility Outcome 3 (R3): Civic and Environmental Issues
One (1) learning experience

Integration Goal

Integration Outcome 1 (I1): Integration
Two (2) learning experiences

Service-Learning Goal

Service-Learning
30 hours

College Degree Requirements

Bachelor of Arts or Bachelor of Science Degree (B.A./B.S.)

University Graduation Requirements. All candidates for degrees must fulfill the requirements for credits, curriculum, GPA, and University residency as specified in the section of this catalog titled University Graduation Requirements.

College Graduation Requirements: Grade Point Averages. All candidates for degrees in the College of Arts and Sciences must earn minimum resident and total GPAs of 2.00 in the major, the minor, and the certificate. The resident and total GPAs for the major are computed using all attempted credits applicable to the major including those offered by departments other than the major department. The resident and total GPAs for the minor and the certificate are computed similarly.

Major-Minor and Major-Certificate Requirements. A standard major (a minimum of 36 credits) must be supplemented by a minor (a minimum of 24 credits) or by a certificate (12 to 18 credits) to meet graduation requirements for completing a first and second degree program. No minor or certificate is required with a Comprehensive Major (60 or more credits) or with two majors of 36 or more credits each.

Certain degree programs, which include Comprehensive Majors, may require more than the minimum of 120 credits for graduation.

Acceptable academic program combinations are determined at the college level. A major and a minor or a major and certificate or two majors (if available) may not be elected in the same department or program, except in the approved combinations listed here.

College Credits. Earn at least 90 credits in courses offered by the College of Arts and Sciences.

Bachelor of Arts Degree in the College of Arts and Sciences (B.A.)

Fulfillment of all University Graduation Requirements (which includes the Liberal Education Core); all College-level degree requirements (major and minor/certificate emphases, GPAs, earning at least 90 credits in Arts and Sciences course work); foreign language competency at the 102 level. Foreign language competency may be met in one of two ways: (1) Achieve a score on the foreign language placement test that qualifies the student to enter the 201-level course in a foreign language. (2) Earn a grade of at least C (not C-) or a mark of S in a 102-level foreign language course (or AIS 112 or AIS 122 / LANG 122 or CSD 103).

Bachelor of Science Degree in the College of Arts and Sciences (B.S.)

Fulfillment of all University Graduation Requirements (which includes the Liberal Education Core); all College-level degree requirements (major and minor/certificate emphases, GPAs, earning at least 90 credits in Arts and Sciences course work); mathematics competency at the MATH 111, MATH 112 or MATH 113 level. Mathematics competency can be met in one of three ways: (1) Achieve a score on the mathematics placement test that qualifies the student to enter MATH 114. (2) Earn a grade of at least C (not C-) or a mark of S in MATH 111, MATH 112, or MATH 113. (3) Achieve a satisfactory score on the MATH 112 competency test. This test may be attempted no more than two times.

Major Requirements

Liberal Arts (Code 250-010)

The structure of the major is unique: it integrates an engineering-oriented field into a liberal arts and sciences degree, and is thus deliberately interdisciplinary and broadly defined, consistent with a liberal education approach. Students specialize through a chosen emphasis. The major serves students who plan to enter the workforce after graduation as well as students interested in graduate education in areas such as Materials Science, Engineering, Chemistry, and Physics.

The degree is comprised of a minimum of 62 credits, including completion of core courses, at least six credits from courses in the Materials Science electives,
and at least six credits in a chosen emphasis. Credits applied toward the electives and emphasis must be unique credits.

**CORE COURSES**

**Materials Science**

MSE 221  Living in a Materials World  3
MSE 315  Materials Characterization  4
MSE 334  Soft Materials  4
MSE 350  Thermodynamics of Materials  4
MSE 357  Phase Transformation & Kinetics  3
MSCI 384  Materials Science Junior Seminar I  0.5
MSCI 385  Materials Science Junior Seminar II  0.5
MSCI 484  Materials Science Capstone I  1
MSCI 485  Materials Science Capstone II  2

**Chemistry**

CHEM 115  Chemical Principles  6
or
CHEM 103  General Chemistry I  8
& CHEM 104  and General Chemistry II  1
or
CHEM 105  General Chemistry I Lecture  9
& CHEM 106  and General Chemistry I Laboratory  1
& CHEM 109  and General Chemistry II with Lab  1
CHEM 325  Organic Chemistry I with Laboratory  4

**Mathematics**

MATH 114  Calculus I  4
MATH 215  Calculus II  4

**Physics**

PHYS 231  University Physics I  5
PHYS 232  University Physics II  5

**ELECTIVE COURSES**

MSE 256  Introduction to Computer Aided Design  1
MSE 362  Microelectronic Materials Processing  2
MSE 363  Microelectronic Materials Processing Lab  2
MSE 367  Macroprocessing of Materials  3
MSE 368  Macroprocessing Materials Lab  2
MSE 372  Transport Phenomena  3
MSE 374  Physics of Solids  4
MSE 451  Computational Materials Science  4
MSE 475  Nanomaterials  3
MSE 493  Collaborative Internship  1-3
MSE 494  Off-campus Materials Science Internship  1-3
MSCI 395  Directed Studies  1-3
MSCI 399  Independent Study - Juniors  1-3
MSCI 499  Independent Study - Seniors  1-3

1. Only six credits apply to major.

**NOTES:**

1. A maximum of three credits total from MSCI 395, MSCI 399, and MSCI 499 and MSE 493 and MSE 494 may be applied toward the Electives category.

2. MATH 312 is recommended for students planning to attend graduate school.

**EMPHASIS REQUIREMENTS**

Core courses plus six credits from the Elective courses plus six credits in an Emphasis. All six emphasis credits must meet the requirements described in either A or B below.

**A. Defined emphasis**

- Be from the same prefix
- Be from the following prefixes: BIOL, CHEM, CS, GEOL, MATH, MGMT, PHYS
- Be from UWEC courses numbered 300 or above, or from courses appropriate for a major, such as: BIOL 221, BIOL 222, BIOL 223, CHEM 213, CHEM 218, CS 145, CS 148, CS 163, CS 170, CS 245, CS 252, GEOL 106, GEOL 110, GEOL 115, GEOL 118, and MATH 216

**B. Distributed emphasis**

The student may pursue an emphasis that reflects a thematic area of concentration and intentional connections. Such an emphasis, with approval of the faculty advisor, must draw from courses appropriate for a major in another area distinct from Materials Science or Materials Science and Engineering.