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**New Academic Program – Minor (**[**Undergraduate**](https://catalog.arizona.edu/policy/undergraduate-minors) **or** [**Graduate**](https://catalog.arizona.edu/policy/graduate-minors)**)**

**CURRICULAR INFORMATION**

1. **MINOR DESCRIPTION:** Work with your [college marketing lead](https://docs.google.com/spreadsheets/d/1ujSX9oJ8NRzFhRlGomThUVWaj529UBalZSQJx52WR3g/edit#gid=2119401250) to provide a marketing/promotional description for the proposed program. The description will be displayed on the advisement report(s), Degree Search, catalog, and should match departmental and college websites, handouts, promotional materials, etc. No more than 100-200 words.
2. **JUSTIFICATION/NEED FOR THE MINOR:** Describe the purpose and need for the proposed minor,providing market analysis data or other tangible evidence of the need/interest in the program. This might include results from surveys of current students, alumni, and/or employers or reference to student enrollments in similar programs in the state or region. Curricular Affairs can provide a job posting/demand report by skills obtained/outcomes of the proposed minor, upon request.
3. **Viability:** To support the proposed program, does the college envision sharing resources used by other programs, redeploying internal resources (consolidating existing minors, disestablishing other minors), etc.?
	1. Summarize new resources required to offer the minor (may include additional faculty, staff, equipment, facilities, etc.):

|  |  |  |
| --- | --- | --- |
| Year 1 | Year 2 | Year 3 |
|  |  |  |

1. **Projected Enrollment:** You will need to provide evidence to support the projection (i.e., student/alum surveys, enrollment in existing courses, peer programs, etc.).
2. **MINOR REQUIREMENTS**: Complete the table below. All University of Arizona undergraduate minors require at least 18 units; graduate minors require at least 9 units. Note: information in this section must be consistent throughout the proposal documents and will be used to build the Academic Advisement Report (ADVIP) and Catalog Descriptions. Delete the EXAMPLE column before submitting/uploading**.**

**Undergraduate Minor: (if this table does not apply, please delete).**

|  |  |  |
| --- | --- | --- |
| Minimum total units required |  | EXAMPLE 18 |
| Minimum upper-division units required  |  | 9 |
| Total transfer units that may apply to minor |  | 9 |
| List any special requirements to declare/admission to this minor (completion of specific coursework, minimum GPA, interview, application, etc.) |  | -Meet with departmental interview committee -Complete all pre-requisite coursework |
| Minor requirements. List all required minor requirements including core and electives. Courses listed must include course prefix, number, units, and title. Mark new coursework (New). Include any limits/restrictions needed (house number limit, etc.). Provide [course use form](https://academicadmin.arizona.edu/sites/default/files/2024-01/Updated_Course%20Use%20Collaboration%20Form.docx) from home department for courses not owned by your department. |  | List all required coursework. For example:Core:Complete 2 courses (6 units):-(NEW) ACTU 123 (3) Introduction to Actuarial Sciences-(NEW) ACTU 345 (3) Advanced Actuarial MethodsElectives: Complete 12 units from the following. Limit of 3 units from house-numbered coursework may be used towards this requirement: |
| Internship, practicum, applied course requirements (Yes/No). If yes, provide description. |  | Yes. Complete 3 units of internship or practicum with a local firm |
| Additional requirements (provide description) |  | Complete and submit “Actuary Minor Reflection Paper” |
| Any double-dipping restrictions (Yes/No)? If yes, provide description. |  | Yes, minor coursework may not double dip with another minor.  |

**Graduate Minor: (if this table does not apply, please delete).**

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| --- | --- | --- |
| Minimum total units required |  | EXAMPLE 9 |
| Total transfer units that may apply to minor |  | 9 |
| List any special requirements to declare/admission to this minor (completion of specific coursework, minimum GPA, interview, application, etc.) |  | -Meet with departmental interview committee -Complete all pre-requisite coursework |
| Minor requirements. List all required minor requirements including core and electives. Courses listed must include course prefix, number, units, and title. Mark new coursework (New). Include any limits/restrictions needed (house number limit, etc.). Provide [course use form](https://academicadmin.arizona.edu/sites/default/files/2024-01/Updated_Course%20Use%20Collaboration%20Form.docx) from home department for courses not owned by your department. |  | List all required coursework. For example:Core:Complete 2 courses (6 units):-(NEW) ACTU 524 (3) Introduction to Actuarial Sciences-(NEW) ACTU 565 (3) Advanced Actuarial MethodsElectives: Complete 3 units from the following. Limit of 3 units from house-numbered coursework may be used towards this requirement : |
| Internship, practicum, applied course requirements (Yes/No). If yes, provide description. |  | Yes. Complete 3 units of internship or practicum with a local firm |
| Additional requirements (provide description) |  | Complete and submit “Actuary Minor Reflection Paper” |
| Any double-dipping restrictions (Yes/No)? If yes, provide description. |  | Yes, minor coursework may not double dip with another minor.  |

1. **NEW COURSES NEEDED:**  If new courses are required for the proposed program, [UA Course Add forms](https://academicadmin.arizona.edu/courseapprovals) must be submitted before/simultaneously with this proposal. List all course additions in progress in the table below. Add rows as needed.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Course prefix and number (include cross-listings) | Units | Title | Pre-requisites | Modes of delivery (online, in-person, hybrid) | Course Fee? (Y/N)[More info here](https://registrar.arizona.edu/faculty-staff-resources/courses-catalog/course-fees/course-fee-request-forms). | Course Form transaction number | Anticipated first term offered | Use in the program (required/elective) |
|  |  |  |  |  |  |  |  |  |
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**Note:** *if UA Online is a desired option, please contact them at* *azonline-info@arizona.edu* *to inquire about their review process. Listing it here does not guarantee it will be an approved program for the ONLN campus.*

1. **Learning Outcomes and Curriculum Map** - Complete these tables as a summary of the learning outcomes from your assessment plan and an overview of where learning outcomes are addressed in the program. Use the examples below as models and refer to the explanations beneath each table. Additional resources are available from the [University Center for Assessment, Teaching and Technology](https://ucatt.arizona.edu/assessment/learning-outcomes-assessment/academic-program-learning-assessment).

**Learning Outcomes**

|  |
| --- |
| **Learning Outcome #1:** Students will design, implement, and test programs that solve significant and meaningful problems, making appropriate design choices that best meet given requirements. |
| **Concepts:** Software design, correctness, problem types: classification, clustering, and generation |
| **Competencies:** Incorporating artificial intelligence solutions into larger software projects, online learning, reducing real-world problems to problems solvable with artificial intelligence techniques, assessing limitations of existing artificial intelligence techniques |
| **Assessment Methods:** coding exercises, written reports and analyses (direct), and student exit survey (indirect) |
| **Measures:** instructor grading of coding exercises, reports, homework assignments, and exams, responses to student exit survey |
| **Learning Outcome #2:**  Students will design and analyze algorithms and reason about their correctness and performance. |
| **Concepts:** Runtime and storage complexity, big-O notation, program correctness |
| **Competencies:** compare algorithm types for a problem, estimate algorithm complexity, implement and compare sorting and searching algorithms, specify and choose optimal data structures for a given problem |
| **Assessment Methods:** programming assignments, analyze pseudo-code, analyze multiple algorithmic solutions to the same problem (direct), and student exit survey (indirect) |
| **Measures:** correctness against test cases, instructor grading of homework assignments and exams, responses to student exit survey |
| **Learning Outcome #3:** Students will analyze and compare algorithms that learn from data and evaluate their performance in realistic settings. |
| **Concepts:** Statistical analysis, data interpretation, building and evaluating predictive models, domain adaptation |
| **Competencies:** estimate decision boundaries, define and apply informative evaluation metrics, conduct hypothesis testing, train and evaluate models in multiple domains |
| **Assessment Methods:** implementation of algorithms, theoretical analysis of algorithms,improvements and modifications of known algorithms, experimental design, empirical evaluation (direct), and student exit survey (indirect) |
| **Measures:** test cases against benchmarks, instructor grading of homework assignments and exams, responses to student exit survey |

*Explanation:* ***Concepts****are the topics that students will learn in the program.****Competencies****are the skills they will learn. A****learning outcome****is their ability to apply the skills to the topics, or to use the skills and the topics together, in an observable way. The****assessment method****is where students will demonstrate the learning outcome, and a****measure****is how data will be pulled from the assessment method. Include both a direct and indirect assessment method and measurement for each learning outcome. Competencies and the learning outcomes need to reflect higher level learning: consider using verbs from the Application, Analysis, Synthesis, and Evaluation columns from this list when writing learning outcomes:* [*https://arizona.app.box.com/s/orx6coex8607hlmenrgl7dznhzjicpit*](https://arizona.app.box.com/s/orx6coex8607hlmenrgl7dznhzjicpit)*. We recommend 2-3 Learning Outcomes for a minor.*

 **Curriculum Map**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Course # | Course # | Course # | Course # | Course # | Course # |
| LO #1:  |  |  |  |  |  |  |
| LO #2:  |  |  |  |  |  |  |
| LO #3:  |  |  |  |  |  |  |

*Explanation: The curriculum map lists the required courses for the program and indicates where each LO will be introduced (I), reinforced (R), and mastered (M). This is important to show that you are including adequate teaching of the skills and concepts to support the LOs. Each row (LO) should have at least one I, R, and M in it. Usually (but not always) there is more than one R. Usually (but not always) there is only one I and one M. Generally, Is come first, followed by Rs, and Ms are last. Each column (class) should have at least one letter in it, but not every box needs to be filled in.*

**VIII**. **CONTACTS AND ADMINISTRATION**
**UNDERGRADUATE** (delete if n/a)

a. List the name and contact information for the primary point of contact for the certificate:

b. List the name and contact information for the person or persons who will serve in the role of Director of Undergraduate Studies (DUS) for the certificate (this is not always the same as the DUS for affiliated programs or head of the managing academic unit.):

c. If known, list the members of the certificate oversight committee for this certificate. Note: undergraduate certificate oversight committees shall consist of a minimum of 3 members, 2 of which are faculty and at least one of the 2 is participating faculty in the certificate program. The oversight committee is responsible for 1) qualifications of participating faculty, 2) coordination of admissions recommendations with the Office of Admissions, and 3) curricular changes:

**GRADUATE** (delete if n/a)

a. List the name and contact information for the Admissions Contact:

b. List the name and contact information for the Graduate Program Coordinator:

c. List the name and contact information for the Director of Graduate Studies:

d. List the name and contact information for the Graduate College Degree Counselor:

1. **REQUIRED SIGNATURES**

Program Director/Main Proposer (print name and title):

Program Director/Main Proposer signature:

Date:

Department Head (print name and title):

Department Head’s signature:

Date:



Associate/Assistant Dean (print name):

Associate/Assistant Dean’s signature:

Date:



Dean (print name):

Dean’s signature:

Date:

