

The completed and signed proposal should be submitted by the Dean's Office to: <u>curriculumplanning@asu.edu</u>. Before academic units can advertise undergraduate minors or include them in their offerings as described in the university catalogs, they must be recommended for approval by the Senate Curriculum and Academic Programs Committee and approved by the Office of the University Provost.

Definition and minimum requirements:

These are the minimum requirements for approval. Individual undergraduate minors may have additional requirements.

A minor is an approved, coherent focus of academic study in a single discipline, other than the student's major, involving substantially fewer hours of credit than a corresponding major. Certain major and minor combinations may be deemed inappropriate by either the college or department of the major or minor. Inappropriate combinations include (but would not be limited to) ones in which an excessive number of courses in the minor are simultaneously being used to fulfill requirements of the student's major.

A minor:

- Requires a minimum of 15 credit hours of which at least nine credit hours must be upper division
- Is not intended for students pursuing a major in the department which offers the minor

College/School/Institute:	New College of Interdisciplinary Arts and Sciences			
Department/Division/School:	School of Mathematical and Natural Sciences			
Proposing Faculty Group (if applicable):				
Proposed Minor Name:	Pharmacology and Toxicology			
Requested effective date: For deadline dates, see: <u>Curriculum Workflow Calendars</u> .	2020-21			
Delivery method and campus or location options: select all locations that apply				

	Phoenix		Polytechnic		Tempe		Thunderbird	\boxtimes	West		Other:
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Both on-campus **and** ASU Online* - (check applicable campus(es) from options listed above)

ASU Online only (all courses online and managed by ASU Online)

Note: Once students elect a campus or online option, students will not be able to move between the on-campus and the ASU Online options. Approval from the Office of the University Provost and <u>Philip Regier</u> (Executive Vice Provost and Dean) is required to offer programs through ASU Online. Please contact Ed Plus <u>then</u> complete the ASU Online Offering form in <u>Curriculum</u> <u>ChangeMaker</u> to begin this request.

Proposal Contact					
Name:	Karen Watanabe	Title:	Associate Professor		
Phone number:	602.543.5811	Email:	karen.watanabe@as	u.edu	
		DEAN APPROVAL(S	S)		
This proposal has been approved by all necessary unit and College/School levels of review. I recommend implementation of the proposed organizational change.					
College/School/Divi	ision Dean name:	Todd Sandrin, Vice Provost/Dean,	New College of Interc	lisciplinary Arts and Sciences	
College/School/Divis (if more than one col		Godd Sand	Date:	3/21/2019	
	Signature		Date:	/ /20	
Note: An electronic s	ignature, an email fi	rom the dean or dean's designee, or	r a PDF of the signed s	signature page is acceptable.	



1. Overview

A. Description

Provide a brief description of the proposed minor.

The proposed minor includes basic biology and chemistry courses required as pre-requisites for upper-level pharmacology and toxicology courses taught in the School of Mathematical and Natural Sciences.

B. Why should this be a minor rather than a concentration?

We have a pharmacology/toxicology concentration for our bachelor's degree in biology that requires 29 credit hours. A minor would allow a student in a major with less topical overlap, e.g., medical studies, biochemistry, quantitative sciences (e.g., applied math), or business (health care), to become familiar with basic concepts in pharmacology and toxicology that would enhance career paths in environmental risk assessment, public health, or the pharmaceutical industry.

C. Affiliation

If the minor is affiliated with a degree program, include a brief statement of how it will complement the program. If it is not affiliated with a degree program, incorporate a statement as to how it will provide an opportunity for a student to gain knowledge or skills not already available at ASU.

The minor will complement the existing BS Pharmacology and Toxicology (PTX) by introducing new student perspectives (e.g., quantitative, economic, corporate) into existing courses. These new perspectives may also stimulate the development of additional elective course for these majors.

D. Demand

Explain the need for the new minor (e.g., market, student demand, interdisciplinary considerations).

There is a need in the workforce for students with interdisciplinary education and training. This will provide students in business, life and quantitative sciences an opportunity to better prepare for a career that requires knowledge of how chemicals (drugs and environmental toxicants) affect people and wildlife.

E. Projected enrollment

What are enrollment projections for the first three years?

	1 st Year	2 nd Year	3 rd Year
		(Yr. 1 continuing + new entering)	(Yr. 1 & 2 continuing + new entering)
Number of Students (Headcount)	5	10	15

2. Support and Impact

A. Faculty governance

Attach a supporting letter from the chair of the academic unit verifying that the proposed minor has received faculty approval through appropriate governance procedures in the unit and that the unit has the resources to support the minor as presented in the proposal, without impacting core program resources.

See letter from Dr. Stephen Wirkus, Professor and Interim Director of the School of Mathematical and Natural Sciences.

B. Other related programs

Identify other related ASU programs and outline how the new minor will complement these existing ASU programs. (If applicable, statements of support from potentially affected academic unit administrators need to be included with this proposal submission.)

The BS and Minor in Pharmacology and Toxicology are unique to ASU, however these programs draw on traditional natural sciences such as chemistry, biology, and biochemistry, with programs and courses that are offered by other science programs across the University. For this reason, we have requested and obtained favorable impact statements from The College of Liberal Arts and Sciences, The Edson College of Nursing and Health Innovation, the College of Health Solutions, and the College of Integrative Science and Arts.



C. Letter(s) of support

Provide a supporting letter from each college/school dean from which individual courses are taken.

3. Academic Curriculum and Requirements

A. Knowledge, competencies, and skills

List the knowledge, competencies, and skills (learning outcomes) students should have when they complete this proposed minor. Examples of program learning outcomes can be found at (<u>http://www.asu.edu/oue/assessment.html</u>).

Graduates with a pharmacology and toxicology minor will be able to explain fundamental concepts in pharmacology and toxicology such as pharmacokinetics, pharmacodynamics, dose-response analysis, and chemical metabolism.

B. Program Map

Attach a copy of the "proposed" map for this minor program. Instructions on how to create a "proposed minor map" in <u>BAMM</u> can be found in the <u>Build a Major Map Training Guide</u>.

C. Curricular structure

Provide a description of the curricular requirements for the minor. Be specific in listing required courses as well as electives and specify the total minimum number of hours required for the minor.

Prefix	Number	Title	Is this a new course?	Credit Hours
BCH	371	Modern Concepts in Biochemistry	No	3
BIO	182	General Biology II (SG)	No	4
СНМ	116	General Chemistry II (SQ)	No	4
PTX	301	Basics of Pharmacology and Toxicology	No	3
·			Section sub-total:	14
Elective Minor Co	urses	n		
Prefix	Number	Title	Is this a new course?	Credit Hours
PTX/FOR	401	Forensic Toxicology	No	3
PTX/LSC	432	Fundamentals of Pharmacology	No	3
PTX/FOR/LSC	475	Principles of Toxicology	No	3
PTX	499	Individualized Instruction	No	1-3
			(Select one)	
·			Section sub-total:	6
Other Minor Requ	iirements			
E.g. – Capstone expapplicable	perience, internship	o, clinical requirements, field studies, foreign langua	age skills as	Credit Hours
			Section sub-total:	
		Total minimum credit hours requ	ired for the minor	20



D. Minimum residency requirement How many hours of the minor must be ASU credit?

9

E. New courses

Provide a brief course description for each new course.

No new courses needed

Note: All new required courses should be submitted in Curriculum Changemaker and ready for Provost's Office approval before this minor is put on <u>Curriculum and Academic Programs Committee (CAPC)</u> agenda.

4. Administration and Resources

A. Enrollment criteria

Describe the procedures and any qualifications for enrollment in the minor.

Standard ASU procedures will be used for enrolling in the minor. The following courses do not count toward the minor but may be needed in order to complete the requirements of the minor:

BIO 181 General Biology I (4) (SQ)

BIO 353 Cell Biology (3)

CHM 113 General Chemistry I (4) (SQ)

CHM 233 General Organic Chemistry I (3) AND CHM 237 General Organic Chemistry I Lab (1)

CHM 234 General Organic Chemistry II (3) AND CHM 238 General Organic Chemistry II Lab (1)

LSC 347 Fundamentals of Genetics (3)

B. Administration

How will the proposed minor be administered (including enrollment, student advisement, retention, minor completion verification, etc.)?

Student advising will administer the minor.

C. Resources

What are the resource implications for the proposed minor, including any projected budget needs? Will new books, library holdings, equipment, laboratory space and/or personnel be required now or in the future? If multiple units/programs will collaborate in offering this minor, please discuss the resource contribution of each participating program. Letters of support must be included from all academic units that will commit resources to this minor.

No additional resources are needed at this time



PROPOSAL TO ESTABLISH A NEW MINOR

5. Additional Materials

- A. Appendix Complete and attach the Appendix document.
- B. Program of study Provide one or more model programs of study (if appropriate).
- C. Attach other information that will be useful to the review committees and the Office of the Provost.

PROVOST OFFICE APPROVAL(S)

This proposal has been approved by all necessary Provost office levels of review. I recommend implementation of the	
proposed organizational change.	

Office of the University Provost

Signature

Date: / /20

Note: An electronic signature, email, or a PDF of the signed signature page is acceptable.



APPENDIX OPERATIONAL INFORMATION FOR MINORS

(This information is used to populate the <u>Degree Search</u>/catalog website. Please consider the student audience in creating your text.)

1. Proposed Minor Name: Pharmacology and Toxicology

2. Marketing Description

Optional. 50 words maximum. The marketing description should not repeat content found in the program description.

3. Program Description (150 words maximum)

A minor in pharmacology and toxicology provides students with biology and chemistry courses to help prepare students for upper-division courses focused on how chemicals (drugs and environmental toxicants) affect living organisms. Students will be able to identify chemical characteristics leading to beneficial and adverse effects, describe how chemicals are evaluated for regulatory purposes, and summarize holistically how drugs and toxicants elicit their effects.

Relevant career paths include the pharmaceutical industry, regulatory fields such as environmental risk assessment, and graduate programs in public health, pharmacology, toxicology or environmental health sciences.

4. Contact and Support Information

Building code and room number: (*Search ASU map*) Program office telephone number: (*i.e. 480/965-2100*) Program Email Address:

Program Website Address:

FAB N100 602/543-3000 mnsadvising@asu.edu https://newcollege.asu.edu/pharmacology-and-toxicologyminor

5. Program Requirements

Remember to attach a copy of the "proposed" map for this minor program. Instructions on how to create a "proposed minor map" in <u>BAMM</u> can be found in the <u>Build a Major Map Training Guide</u>.

6. Enrollment Requirements

If applicable, list any special enrollment requirements applicable to this minor in addition to the standard text. Enrollment requirements for all minors include the following text.

GPA Requirement: 2.00

Majors Ineligible to Add This Minor: BS in pharmacology and toxicology, BS in biology (pharmacology/toxicology)

Other Enrollment Requirements: The following prerequisite courses do not count toward the minor, but may be needed in order to complete the requirements of the minor:

BIO 181 General Biology I

BIO 353 Cell Biology

CHM 113 General Chemistry I

CHM 233 General Organic Chemistry I AND CHM 237 General Organic Chemistry Laboratory I

CHM 234 General Organic Chemistry II AND CHM 238 General Organic Chemistry Laboratory II

LSC 347 Fundamentals of Genetics

Current ASU undergraduate students may pursue a minor and have it recognized on their ASU transcript at graduation. Students interested in pursuing a minor should consult their academic advisor to declare the minor and to ensure that an appropriate set of courses is taken. Minor requirements appear on the degree audit once the minor is added. Certain major and minor combinations may be deemed inappropriate by the college or department of either the major program or the minor. Courses taken for the minor may not count toward both the major and minor. Students should contact their academic advisor for more information.



7. Delivery/Campus Information Options:

On-campus only (ground courses and/or iCourses)

Note: Once students elect a campus or online option, students will not be able to move between the on-campus and the ASU Online options. Approval from the Office of the University Provost and <u>Philip Regier</u> (Executive Vice Provost and Dean) is required to offer programs through ASU Online. Please contact Ed Plus <u>then</u> complete the ASU Online Offering form in <u>Curriculum ChangeMaker</u> to begin this request.

8. Campus/Locations indicate <u>all</u> locations where this program will be offered.

Phoenix Difference Prempe Difference A west Difference		Downtown Phoenix		Polytechnic		Tempe		Thunderbird	\boxtimes	West		Othe
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9. Keywords

List all keywords used to search for this program (limit 7). Keywords should be specific to the proposed program. Pharmacology, Toxicology, Pre-medicine, Pre-pharmacy, Pre-Health, Veterinary Medicine, Environmental Health

2019 - 2020 MINOR Map Pharmacology and Toxicology (Proposed)

Program Requirements

The minor in pharmacology and toxicology consists of 20 credit hours. A minimum of 12 credit hours must be upper-division. A minimum of nine credit hours must be taken through the School of Mathematical and Natural Sciences. All courses used to satisfy requirements for the minor must be passed with a "C" (2.00) or better.

Required -- 14 credit hours

BCH 371: Modern Concepts in Biochemistry (3)BIO 182: General Biology II (SG) (4)CHM 116: General Chemistry II (SQ) (4)PTX 301: Basics of Pharmacology and Toxicology (3)

Electives -- 6 credit hours

PTX 401 / FOR 401: Forensic Toxicology (3) PTX 432 / LSC 432: Fundamentals of Pharmacology (3) PTX 475 / FOR 475 / LSC 475: Principles of Toxicology (3) PTX 499: Individualized Instruction (3)

Depending on a student's undergraduate program of study, prerequisite courses may be needed in order to complete the requirements of this minor.

Stacey Kimbell

From:Todd SandrinSent:Thursday, March 21, 2019 10:21 AMTo:Stacey KimbellCc:Patricia Friedrich; Mary BauerSubject:RE: Proposal to establish the minor in Pharmacology and Toxicology

I approve.

Thanks, Stacey!

Todd

From: Stacey Kimbell <kimbell@asu.edu>
Sent: Thursday, March 21, 2019 10:19 AM
To: Todd Sandrin <Todd.Sandrin@asu.edu>
Cc: Patricia Friedrich <Patricia.Friedrich@asu.edu>
Subject: Proposal to establish the minor in Pharmacology and Toxicology

Good afternoon Todd,

Attached is the proposal to establish the minor in pharmacology and toxicology. It has been reviewed by Patty and the Undergraduate Curriculum Committee. Would it be possible to have your approval for the proposal, and if so, your approval to have Mary affix your electronic signature?

Thanks, Stacey

Stacey Kimbell

Curriculum Coordinator and Executive Admin Support Specialist Academic Administration and Curriculum Planning ASU New College of Interdisciplinary Arts and Sciences Voice: (602) 543-6150 Fax: (602) 543-4565

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March 12, 2019

То:	Todd Sandrin, Dean New College of Interdisciplinary Arts and Sciences
From:	Stephen Wirkus, Interim Director School of Mathematical and Natural Sciences
Subject:	Proposal to Establish the Minor in Pharmacology and Toxicology

Attached please find the Proposal to Establish the Minor in Pharmacology and Toxicology.

This proposal was approved by the MNS faculty and the New College Undergraduate Curriculum Committee. This memo certifies that the School has the resources to support this program without impacting core program resources. From: Todd Sandrin <Todd.Sandrin@asu.edu>
Date: Friday, March 29, 2019 at 4:04 PM
To: Nancy Gonzales <nancy.gonzales@asu.edu>
Cc: Patricia Friedrich <Patricia.Friedrich@asu.edu>
Subject: RE: Request for Impact Statement - PTX Minor

Thanks so much, Nancy!

From: Nancy Gonzales
Sent: Friday, March 29, 2019 3:54 PM
To: Todd Sandrin <Todd.Sandrin@asu.edu>
Cc: Patricia Friedrich <Patricia.Friedrich@asu.edu>
Subject: RE: Request for Impact Statement - PTX Minor

Dear Todd,

We are fine with this proposed minor. Sounds very interesting.

Nancy

Stacey Kimbell

From: Sent: To: Subject: Patricia Friedrich Friday, March 29, 2019 2:30 PM Stacey Kimbell FW: Request for Impact Statement - PTX Minor

FYI

From: Deborah Helitzer <Deborah.Helitzer@asu.edu>
Date: Friday, March 29, 2019 at 2:28 PM
To: Todd Sandrin <Todd.Sandrin@asu.edu>
Cc: Patricia Friedrich <Patricia.Friedrich@asu.edu>
Subject: Re: Request for Impact Statement - PTX Minor

Hi Todd – sorry this dropped through the cracks. We've gotten a lot of these. I don't see any problem with it.

Deborah

Deborah L. Helitzer, Sc.D. Dean and Professor College of Health Solutions Arizona State University 550 North 3rd Street Phoenix AZ 85004 602.496.1943 deborah.helitzer@asu.edu Web: chs.asu.edu

For appointments and information, please contact Malissa Todd (malissa.endsley@asu.edu)



From: Todd Sandrin <Todd.Sandrin@asu.edu>
Date: Friday, March 29, 2019 at 2:24 PM
To: Deborah Helitzer <Deborah.Helitzer@asu.edu>
Cc: Patricia Friedrich <Patricia.Friedrich@asu.edu>
Subject: FW: Request for Impact Statement - PTX Minor

Deborah,

Don't hesitate to let me know if I can provide additional information here.

Thanks! Todd

Stacey Kimbell

From: Sent: To: Subject: Patricia Friedrich Friday, March 29, 2019 2:45 PM Stacey Kimbell FW: Request for Impact Statement - PTX Minor

From: Todd Sandrin <Todd.Sandrin@asu.edu>
Date: Friday, March 29, 2019 at 2:23 PM
To: Patricia Friedrich <Patricia.Friedrich@asu.edu>
Subject: FW: Request for Impact Statement - PTX Minor

Here's Duane's. I'll forward Judy Karshmer's (via Katherine Kenney) next.

Todd

From: Duane Roen
Sent: Thursday, March 14, 2019 1:37 PM
To: Todd Sandrin <Todd.Sandrin@asu.edu>; Nancy Gonzales <nancy.gonzales@asu.edu>; Judith Karshmer
<Judith.Karshmer@asu.edu>; Deborah Helitzer <Deborah.Helitzer@asu.edu>
Subject: RE: Request for Impact Statement - PTX Minor

Todd,

CISA is delighted to support New College's proposal for a minor in Pharmacology and Toxicology.

Please me know what else we can do to help.

Best, Duane

Duane Roen Vice Provost, Polytechnic campus Dean, College of Integrative Sciences and Arts Dean, University College Arizona State University Mail Code: 2780 7271 E Sonoran Arroyo Mall Mesa, AZ 85212-6415 P: 480-727-6513 FYI

From: Patricia Friedrich <Patricia.Friedrich@asu.edu>
Date: Thursday, March 14, 2019 at 5:01 PM
To: Todd Sandrin <Todd.Sandrin@asu.edu>, Katherine Kenny <Katherine.Kenny@asu.edu>
Subject: Re: Request for Impact Statement - PTX Minor

Absolutely, Kathy. I am ready to talk anytime about how to make it accessible.

Best, Patty

From: Todd Sandrin <Todd.Sandrin@asu.edu>
Date: Thursday, March 14, 2019 at 4:44 PM
To: Katherine Kenny <Katherine.Kenny@asu.edu>
Cc: Patricia Friedrich <Patricia.Friedrich@asu.edu>
Subject: RE: Request for Impact Statement - PTX Minor

Agreed, Kathy! Copying our Associate Dean for Academic Programs and Personnel, Patty Friedrich, so she's also aware of this great idea.

Todd

From: Katherine Kenny
Sent: Thursday, March 14, 2019 4:34 PM
To: Todd Sandrin <Todd.Sandrin@asu.edu>
Subject: RE: Request for Impact Statement - PTX Minor

 \odot - this might be a good minor for our community health or integrative health students – Nursing too except they don't have the time in their POS

Best,

Kathy

Katherine (Kathy) Kenny, DNP, RN, ANP-BC, FAANP, FAAN Associate Dean of Academic Affairs College of Nursing and Health Innovation Arizona State University (P) 602-496-1719 (F) 602-496-0545 Katherine.kenny@asu.edu From: Todd Sandrin
Sent: Thursday, March 14, 2019 4:32 PM
To: Katherine Kenny <<u>Katherine.Kenny@asu.edu</u>>
Cc: Judith Karshmer <<u>Judith.Karshmer@asu.edu</u>>
Subject: RE: Request for Impact Statement - PTX Minor

Many thanks, Kathy!

Todd

Todd R. Sandrin, Ph.D. Dean, New College of Interdisciplinary Arts and Sciences Vice Provost, <u>West campus</u> Professor, School of Mathematical and Natural Sciences Senior Sustainability Scientist - <u>Julie Ann Wrigley Global Institute of Sustainability</u> Them College

Arizona State University

From: Katherine Kenny
Sent: Thursday, March 14, 2019 4:31 PM
To: Todd Sandrin <<u>Todd.Sandrin@asu.edu</u>>
Cc: Judith Karshmer <<u>Judith.Karshmer@asu.edu</u>>
Subject: FW: Request for Impact Statement - PTX Minor

Dear Todd -

Thank you for asking us to review the proposal to establish a Pharmacology and Toxicology Minor. This minor does not compete with any of the degrees, minors or courses offered in CONHI. On behalf of the College of Nursing and Health Innovation, we support your efforts to move this through the University approval process. Best to you and your team.

Kathy

Katherine (Kathy) Kenny, DNP, RN, ANP-BC, FAANP, FAAN Associate Dean of Academic Affairs College of Nursing and Health Innovation Arizona State University (P) 602-496-1719 (F) 602-496-0545 Katherine.kenny@asu.edu

Begin forwarded message:

From: Todd Sandrin <<u>Todd.Sandrin@asu.edu</u>>
Date: March 14, 2019 at 4:16:06 PM EDT
To: Nancy Gonzales <<u>nancy.gonzales@asu.edu</u>>, Duane Roen <<u>Duane.Roen@asu.edu</u>>, Judith Karshmer <<u>Judith.Karshmer@asu.edu</u>>, Deborah Helitzer
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Subject: Request for Impact Statement - PTX Minor

Deborah, Duane, Judy, and Nancy,

I hope this email finds each of you enjoying a pleasant and productive semester.

Might you provide a brief email and/or statement of impact regarding our proposed minor in Pharmacology and Toxicology (proposal attached) at your earliest convenience (or by next Wednesday, March 20)?

Thanks so much! Todd

Todd R. Sandrin, Ph.D.

<u>Dean, New College</u> of Interdisciplinary Arts and Sciences Vice Provost, <u>West campus</u> <u>Professor, School of Mathematical and Natural Sciences</u> Senior Sustainability Scientist - <u>Julie Ann Wrigley Global Institute of Sustainability</u>

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<<u>Deborah.Helitzer@asu.edu</u>>

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<u>Dean, New College</u> of Interdisciplinary Arts and Sciences Vice Provost, <u>West campus</u> <u>Professor, School of Mathematical and Natural Sciences</u> Senior Sustainability Scientist - <u>Julie Ann Wrigley Global Institute of Sustainability</u>