THE UNIVERSITY OF ARIZONA.

FORM TO REQUEST SUBSTANTIAL CHANGES TO AN EXISTING UNDERGRADUATE MAJOR

A request for substantial changes to an existing program requires approval from the school director/department head (managing administrator), college academic dean, Curricular Affairs, Undergraduate Council (UGC), and College Academic Administrators Council (CAAC). Additional approvals may be required, depending on the requested changes. Complete this form and submit to Martin Marquez (martinmarquez@email.arizona.edu) no later than October 25, 2019 to be considered for inclusion in the 2020-2021 Academic Catalog.

I. **Requested by (College & School/Department): College of Science--Chemistry & Biochemistry**

II. **Proposer's name, title, email and phone number:**
Deirdre Belle-Oudry
Associate Dept Head for Academic Affairs

dbelle@email.arizona.edu

621-9981

III. **Degree, major and number of students enrolled in the major. If you have emphases (sub-plans), list the number of students enrolled by emphasis:** Bachelor of Science, Biochemistry; ~365 majors

IV. **Describe proposed changes to the major. Provide a rationale and explanation for making changes to the major and include any relevant supporting data. Are the changes proposed a result of Annual Program Review (APR) and/or a result from the assessment of programmatic outcomes? If you are requesting a name change, please indicate if the subject code (course prefix) will also change. Include requested new prefix code and description.**

We propose to modify the Biochemistry BS degree requirements as follows. Currently, students are required to take a three-semester series: BIOC 462a *Biochemistry I*, BIOC 462b *Biochemistry II*, and BIOC 466 *Biochemistry of Nucleic Acids.* We propose to eliminate BIOC 466 and move the most foundational material from that course into BIOC 462a/b. The reason for this is to allow students more flexibility in their upper level training while retaining a strong foundation in biochemistry. We have assembled a list of approved elective courses that will complement multiple future directions for Biochemistry majors. This includes Analytical Chemistry, Genetics, Computational Biology, Neuroscience, and several others.

Introductory Biochemistry is rarely taught as a three-course series and in fact was a two-course series for many years in our former Biochemistry Department. Moving our foundational series to two semesters will allow flexibility for the students and flexibility in our course staffing. Removing one third of the time allotted to the foundational courses will naturally lead to a loss of some depth of coverage. However, students will gain additional opportunities in more specialized courses (electives).

The distribution of topics in the existing curriculum is shown in Table 1; the proposed revised curriculum topic distribution is shown in Table 2. Note that all topics in our curriculum have been retained. However, the depth of coverage will change to some degree.

Table 1. Topic distribution in existing Biochemistry curriculum

BIOC 462a	BIOC 462b	BIOC 466
Chemical and Biological Refresher	Signaling – GPCR, Vision, Insulin	Genes and Chromosomes
Bioenergetics	Redox Reactions, Co-Factors and Common Reactions	DNA Replication and Repair
Amino Acids, Peptides and Proteins	Glycolysis and Gluconeogenesis	Transcription
Protein Structure	Fermentation and Hypoxia	Translation
Bioinformatics and Protein Evolution	Mitochondria / TCA Cycle	Gene Regulation
Protein Purification and Analysis	Oxidative Phosphorylation	
Protein Folding/Unfolding/Aggregation	Photophosphorylation	
Protein Function	Principles in Metabolic Regulation	
Enzyme Kinetics, Mechanism and Regulation	Fatty Acid Catabolism	
Carbohydrates and Glycobiology	Amino Acid Catabolism	
Nucleic Acids	Plant Carbohydrate Synthesis	
Lipids, Membranes and Membrane Proteins	Lipid, Amino Acid and Nucleotide Biosynthesis	
	Hormones / Integration	

Table 2. Topic distribution in proposed revised curriculum

BIOC 462a	**BIOC 462b**
Chemical and Biological Refresher	Glycolysis and Gluconeogenesis
Bioenergetics	Fermentation and Hypoxia
Redox reactions, Co-factors and Common Reactions	Mitochondria / TCA Cycle
Amino Acids, Peptides and Proteins	Oxidative Phosphorylation
Protein Structure	Photophosphorylation
Bioinformatics and Protein Evolution	Principles in Metabolic Regulation
Protein Purification and Analysis	Fatty Acid Catabolism
Protein Folding/Unfolding/Aggregation	Amino Acid Catabolism
Protein Function	Plant Carbohydrate Synthesis
Enzyme Kinetics, Mechanism and Regulation	Lipid, Amino Acid and Nucleotide Biosynthesis
Carbohydrates and Glycobiology	Hormones / Integration
Nucleic Acids	*DNA Replication and Repair*
Genes and Chromosomes	*Transcription*
Lipids, Membranes and Membrane Proteins	*Translation*
Signaling – GPCR, Vision, Insulin or other examples	*Gene Regulation*

V. **Comparison Chart**–complete the chart below using your existing academic advisement report. You may not need to complete all portions. Highlight row(s) indicating the proposed significant changes. You can find course information to help complete the chart below by using the UA course catalog or UAnalytics (Catalog and Schedule Dashboard> "Printable Course Descriptions by Department" On Demand Report; right side of screen). Proposed changes resulting in similar curriculum with other plans (within department, college, or university) may require completion of an additional comparison chart.

	Existing Major Requirements	**Requirements For Modified Major**
Major, emphasis (if applicable) and degree *	BIOC BS	BIOC BS
CIP Code –lookup here or contact Martin Marquez for assistance, if needed	26.0202 Biochemistry	26.0202 Biochemistry
Total units required to complete the degree*	120	120
Upper -division units required to complete the degree	42	42
Total CC transfer units that may apply to this degree*	64	64
Foundation courses		
Math	Substantial Math Strand	Substantial Math Strand
Second Language	Second semester proficiency	Second semester proficiency
General Education		
Tier I GE Requirements (150, 160, 170)	2- Tier 1 150 (INDV) 2- Tier 1 160 (TRAD) 0- Tier 1 170 (NATS)	2- Tier 1 150 (INDV) 2- Tier 1 160 (TRAD) 0- Tier 1 170 (NATS)
Tier II GE Requirements (Arts, HUMS, INDV, NATS)	3 units-Tier II Arts 3 units-Tier II Humanities 3 units- Tier II Individuals and Societies 0-Tier II Natural Sciences	3 units-Tier II Arts 3 units-Tier II Humanities 3 units- Tier II Individuals and Societies 0-Tier II Natural Sciences
Pre-major? (Yes/No)	No	No
List any special requirements to declare or gain admission to this major (completion of specific coursework, minimum GPA, interview, application, etc.)	None	None
Minimum # of units required in the major (units counting towards major units and major GPA)	37	37
Minimum # of upper-division units required in the major (upper division units counting towards major GPA)	28	28

Minimum # of residency units to be completed in the major	18	18
Required supporting coursework (courses that do not count towards major units and major GPA, but are required for the major). Courses listed must include prefix, number, units, and title. Include any limits/restrictions in place/needed (house number limit, etc.). Provide email(s)/letter(s) of support from home department head(s) for courses not owned by your department.	-MCB 181R and181 L (4) Intro Biology I Lecture and Lab -ECOL 182R and 182L (4) Intro Biology II Lecture and Lab -MATH 122A/B (5) or MATH 125 (3) Calculus I -MATH 129 (3) Calculus II -MATH 223 (4) or 254 (3) or CHEM 380 (3) Vector calculus or differential equations or mathematical physics for chemistry -PHYS 141(4) or 140(3) or 161H(4) Intro Mechanics -PHYS 241(4) or 240(3) or 261H(4) Intro Electricity and Magnetism -CHEM 151 or 161/163 or 141/143 (4) General Chemistry I -CHEM 152 or 162/164 or 142/144 (4) General Chemistry II	-MCB 181R and181 L (4) Intro Biology I Lecture and Lab -ECOL 182R and 182L (4) Intro Biology II Lecture and Lab -MATH 122A/B (5) or MATH 125 (3) Calculus I -MATH 129 (3) Calculus II -MATH 223 (4) or 254 (3) or CHEM 380 (3) Vector calculus or differential equations or mathematical physics for chemistry -PHYS 141(4) or 140(3) or 161H(4) Intro Mechanics -PHYS 241(4) or 240(3) or 261H(4) Intro Electricity and Magnetism -CHEM 151 or 161/163 or 141/143 (4) General Chemistry I -CHEM 152 or 162/164 or 142/144 (4) General Chemistry II
Major requirements. List all major requirements including core and electives. If applicable, list the emphasis^ requirements. Courses listed count towards major units and major GPA. Courses listed must include prefix, number, units, and title. Mark new coursework (New). Include any limits/restrictions in place/needed (house number limit, etc.). Provide email(s)/letter(s) of support from home department head(s) for courses being added and are not owned by your department. Recommend ordering	A grade of C or better is required for all major coursework. -CHEM 246a (or 242a)/247a (5) OR CHEM 241a/243a (4) Organic Chemistry I lecture/lab -CHEM 246b (or 242b)/247b (5) OR CHEM 241b/243b (4) Organic Chemistry II lecture/lab	A grade of C or better is required for all major coursework. -CHEM 246a (or 242a)/247a (5) OR CHEM 241a/243a (4) Organic Chemistry I lecture/lab -CHEM 246b (or 242b)/247b (5) OR CHEM 241b/243b (4) Organic Chemistry II lecture/lab

requirements in the same order as your advisement report.	-BIOC 296B (1) Intro to Biochem Research -BIOC 462a (4-5) Biochemistry -BIOC 462b(4-5) Biochemistry -BIOC 463a (4) Biochem Lab Techniques -BIOC 466 (4) Biochemistry of Nucleic Acids	-BIOC 296B (1) Intro to Biochem Research -BIOC 462a (4-5) Biochemistry -BIOC 462b(4-5) Biochemistry -BIOC 463a (4) Biochem Lab Techniques -(New): Science Electives (at least 4 units) Choose from the following: -BIOC 395b (1) Scientific Writing CHEM 325 (2) Analytical Chemistry - CHEM 326 (2) Analytical Chemistry Laboratory -CHEM 450 (3) Synthetic and Mechanistic Organic Chemistry -CHEE 477R (3) Microbiology for Engineers -BME 486 (3) Biomaterial-Tissue Interactions -ECOL 320 or 320H (4/5) Genetics, -ECOL 326 (3) Genomics -ENVS 474 (4) Aquatic Plants and the Environment -MATH 363 (3) Intro. to Statistical Methods -MCB 304 (4-5) Molecular Genetics -MCB 325 (3-4) The Biology of Cancer - MCB 410 (3-4) Cell Biology -MCB 411 (3-4) Molecular Biology -MCB 425 (3) Cancer Discoveries -MCB 480 (3) Intro. to Systems Biology -MIC 328R (3) Microbial Physiology, -PLP 428R (3) Microbial Genetics -MIC 452 (3) Antibiotics – A Biological Perspective -NSC 408 (3) Nutritional Biology -NSC 475 (3) Nutrigenomics for the Study of Disease Prevention & Intervention -NSCS 307 (3-4) Cellular

		Neurophysiology -NROS 310 (3-4) Molecular and Cellular Biology of Neurons -NROS 430 (3) Neurogenetics -PCOL 410 (5) Medicinal Chemistry -PHCL 412 (3) Intro. to Pharmacology -PLS 312 (4) Animal and Plant Genetics -PLS 340 (3) Intro. to Biotechnology -PLS 359 (3) Plant Cell Structure and Function -PLS 360 (3) Plant Growth and Physiology -PLS 448a (3) Plant Biochemistry and Metabolic Engineering -PSIO 380(4) Fundamentals of Human Physiology -PSIO 404(3) Advanced Topics in Cellular Physiology -PSIO 420(3) Exercise and Environmental Physiology -PSIO 431 (3) Physiology of the Immune System -PSIO 484 (3) Cardiovascular Muscle Biology and Disease -PHYS 431(3) Molecular Biophysics
	-BIOC 498 or 498H (6) Senior Capstone -CHEM 480a(3) Physical Chemistry I -CHEM 480b or 481(3) Physical Chemistry II	-BIOC 498 or 498H (6) Senior Capstone -CHEM 480a(3) Physical Chemistry I -CHEM 480b or 481(3) Physical Chemistry II
Internship, practicum, applied course requirements. (Yes/No). If yes, provide description.	No	No
Senior thesis or senior project required (Yes/No). If yes, provide description.	Yes, 6 units of BIOC 498 or 498H. Must be completed 3 units at a time over the course of 2 semesters. Students may not enroll in 6 units of BIOC 498 or 498H in one semester.	Yes, 6 units of BIOC 498 or 498H. Must be completed 3 units at a time over the course of 2 semesters. Students may not enroll in 6 units of BIOC 498 or 498H in one semester.

Additional requirements (provide description)	Presentation of senior research at annual CBC Poster Fair.	Presentation of senior research at annual CBC Poster Fair.
Minor (optional or required)	Optional	Optional

*May require Arizona Board of Regents (ABOR) approval

^Emphases are officially recognized sub-specializations within the discipline. ABOR Policy 2-221 c. Academic Degree Programs Subspecializations requires all undergraduate emphases within a major to share at least 40% curricular commonality across emphases (known as "major core"). Total units required for each emphasis must be equal.

VI. Peer institution comparison- describe how your modified major requirements are similar and different from major requirements of two peer institutions. Select peers from (in order of priority) ABOR approved institutions, AAU members, and/or other relevant institutions recognized in the field.

Table 3 shows the upper-level Biochemistry courses required for BS Biochemistry programs at four peer institutions: University of Florida, University of Wisconsin, University of Iowa, and University of Minnesota. Each of these programs require only two upper-level lecture courses. Three out of four of these programs require two upper-level biochemistry lecture courses and one laboratory course, consistent with the modified curriculum we are proposing here. One of them, University of Florida, requires only one upper-level biochemistry class. The proposed changes will make our program more consistent with peer programs.

Table 3. Biochemistry BS course requirements at peer institutions.

Peer Institution	Program	Web Address	Required Biochemistry Courses
University of Florida	Biochemistry and Molecular Biology (College of	https://biochem.med.ufl.edu/academics/undergraduate-courses/	BCH 4024: Structure, function, and metabolism of amino acids, proteins, carbohydrates, lipids, and nucleic acids.
University of Iowa	Biochemistry (College of Med)	https://medicine.uiowa.edu/biochemistry/education/undergraduate-program/undergraduate-curriculum-and-degree-programs	Biochemistry & Molecular Biology I (BIOC 3120) and II (BIOC 3130), Experimental Biochemistry (BIOC 3140)
University of Minnesota-Twin Cities	Biochemistry, Molecular Biology and Biophysics	https://cbs.umn.edu/academics/majors-minors/biochemistry; https://onestop2.umn.edu/pcas/viewCatalogProgram.do?programID=3&campus=UMNTC	4332 Biochem II (signal transduction and gene expression, 4 units); 4521 (physical biochem, 3 units) and 4025 (laboratory, 2 units)
University of Wisconsin - Madison	Department of Biochemistry	https://biochem.wisc.edu/undergraduate_program	BIOC 507/508; BIOC 551 lab

VII. Faculty impact– indicate if new faculty hires will be required to deliver the proposed modified/new curriculum.

No new faculty hires will be required for this curriculum change.

VIII. Budgetary impact– indicate new resources needed and source of funding to implement the proposed changes. If reallocating resources, indicate where resources will be taken from and the impact this will have on students/faculty/program/unit.

No new resources will be required to make this proposed program change. The number of Biochemistry faculty in our department has been greatly reduced over the past several years. This change will prevent us from having to hire additional teaching faculty to cover our courses, and possibly enable us to expand offerings of more specialized courses.

IX. Required signatures

Managing unit administrator (print name and title): ____Deirdre Belle-Oudry, Associate Head for Academic Affairs__

Managing administrator's signature: Deirdre A Belle Oudry Date: 10/4/19

Managing unit administrator (print name and title): Andrei Sanov, Dept. Head

Managing administrator's signature: A. Sanov Date: 10/8/19

Dean (print name): Elliott Chun

Dean's signature: Date: 10/11/19

Dean (print name): _____

Dean's signature: _____ Date: _____

Note: In some situations, signatures of more than one unit head and/or college dean may be required.

For use by Curricular Affairs:

Committee	Approval date
Academic Programs Subcommittee	
Undergraduate Council	
College Academic Administrators Council	
Arizona Board of Regents (if applicable)	

☐ Notify proposers of approval
☐ Upload proposal documents to relevant UAccess tables
☐ Notify ADVIP team and proposers

If ABOR approval required :
☐ If applicable, create approval memo
☐ Send memo to college/dept and acad_org listserv.
☐ If applicable, create new plan code (secondary too)
☐ If applicable, update emphases
☐ If applicable, add last admit term to prior plan code(s)
☐ Upload proposal docs to relevant UAccess table values
☐ Notify ADVIP team and proposers

From: Belle-Oudry, Deirdre A - (dbelle)
To: Marquez, Martin - (martinmarquez)
Subject: FW: Request for support for Biochemistry BS program change
Date: Tuesday, October 8, 2019 8:19:49 AM

****

Deirdre Belle-Oudry
Director of Academic Services
Department of Chemistry and Biochemistry
University of Arizona
1306 E. University Blvd.
Tucson, AZ 85719
(520) 621-9981

From: Chorover, Jon - (chorover) <chorover@email.arizona.edu>
Sent: Monday, October 7, 2019 5:07 PM
To: Belle-Oudry, Deirdre A - (dbelle) <dbelle@email.arizona.edu>
Cc: Sanov, Andrei M - (sanov) <sanov@email.arizona.edu>
Subject: RE: Request for support for Biochemistry BS program change

This would be fine for us (highlighted).

Jon Chorover
Professor and Head
Department of Environmental Science
University of Arizona
Tucson, AZ 85721-0038
Phone: (520) 621-1646
Fax: (520) 621-1647
Email: chorover@email.arizona.edu

From: Belle-Oudry, Deirdre A - (dbelle) <dbelle@email.arizona.edu>
Sent: Monday, October 7, 2019 4:29 PM
To: Belle-Oudry, Deirdre A - (dbelle) <dbelle@email.arizona.edu>
Cc: Sanov, Andrei M - (sanov) <sanov@email.arizona.edu>

Subject: Request for support for Biochemistry BS program change

Dear Department Head,

I am writing to ask for your support for a program change that we are making in the Biochemistry BS degree. We are eliminating an upper-level required course, BIOC 466 (Biochemistry of Nucleic Acids), from our curriculum. In place of this course, students will choose from a set of elective courses from various departments, including yours. The reason you are being asked about this is that there will be ~80 Biochemistry students per year who may choose to enroll in these elective classes (we have ~300 Biochem BS students total). We want you to be aware of this potential enrollment increase, and let us know if you wish to remove your class from our list if this will be a problem.

Also, please be aware that BIOC 466 will be offered for the last time in Spring 2020, in case any of your students are considering taking the class.

Below is the list of electives that will be open to Biochemistry BS students:

-CHEM 325 (2) Analytical Chemistry
- CHEM 326 (2) Analytical Chemistry Laboratory
-CHEM 450 (3) Synthetic and Mechanistic Organic Chemistry
-CHEE 477R (3) Microbiology for Engineers
-BME 486 (3) Biomaterial-Tissue Interactions
-ECOL 320 or 320H (4/5) Genetics,
-ECOL 326 (3) Genomics
-ENVS 474 (4) Aquatic Plants and the Environment
-MATH 363 (3) Intro. to Statistical Methods
-MCB 304 (4-5) Molecular Genetics
-MCB 325 (3-4) The Biology of Cancer
- MCB 410 (3-4) Cell Biology
-MCB 411 (3-4) Molecular Biology
-MCB 425 (3) Cancer Discoveries
-MCB 480 (3) Intro. to Systems Biology
-MIC 328R (3) Microbial Physiology,
-PLP 428R (3) Microbial Genetics
-MIC 452 (3) Antibiotics – A Biological Perspective
-NSC 408 (3) Nutritional Biology
-NSC 475 (3) Nutrigenomics for the Study of Disease Prevention & Intervention
-NSCS 307 (3-4) Cellular Neurophysiology
-NROS 310 (3-4) Molecular and Cellular Biology of Neurons
-NROS 430 (3) Neurogenetics
-PCOL 410 (5) Medicinal Chemistry
-PHCL 412 (3) Intro. to Pharmacology
-PLS 312 (4) Animal and Plant Genetics
-PLS 340 (3) Intro. to Biotechnology
-PLS 359 (3) Plant Cell Structure and Function
-PLS 360 (3) Plant Growth and Physiology
-PLS 448a (3) Plant Biochemistry and Metabolic Engineering
-PSIO 380(4) Fundamentals of Human Physiology
-PSIO 404(3) Advanced Topics in Cellular Physiology
-PSIO 420(3) Exercise and Environmental Physiology

-PSIO 431 (3) Physiology of the Immune System
-PSIO 484 (3) Cardiovascular Muscle Biology and Disease
-PHYS 431(3) Molecular Biophysics

If you support this program change, please reply to this email stating so (including the course numbers in your department that will be affected, or you may highlight them if you wish).
We thank you for your assistance in this matter.

Best regards,

Dee Belle-Oudry
Associate Head for Academic Affairs
CBC Department

****

Deirdre Belle-Oudry
Director of Academic Services
Department of Chemistry and Biochemistry
University of Arizona
1306 E. University Blvd.
Tucson, AZ 85719
(520) 621-9981

From: Belle-Oudry, Deirdre A - (dbelle)
To: Marquez, Martin - (martinmarquez)
Subject: FW: Request for support for Biochemistry BS program change
Date: Wednesday, October 9, 2019 5:15:53 PM

****
Deirdre Belle-Oudry
Director of Academic Services
Department of Chemistry and Biochemistry
University of Arizona
1306 E. University Blvd.
Tucson, AZ 85719
(520) 621-9981

-----Original Message-----
From: Doug Ulmer <ulmer@math.arizona.edu>
Sent: Wednesday, October 9, 2019 3:14 PM
To: Belle-Oudry, Deirdre A - (dbelle) <dbelle@email.arizona.edu>
Cc: Sanov, Andrei M - (sanov) <sanov@email.arizona.edu>; Kevin Lin <klin@math.arizona.edu>; joseph c watkins <jwatkins@math.arizona.edu>
Subject: Re: Request for support for Biochemistry BS program change

Hi Dee. Thanks for clarifying. In light of the small numbers, we should not have any problem accommodating your students and would be happy to do so.

Best wishes,

Doug

> On Oct 9, 2019, at 3:08 PM, Belle-Oudry, Deirdre A - (dbelle) <dbelle@email.arizona.edu> wrote:
>
> Hi Doug
>
> It would likely be a very small number of students, especially considering these additional prerequisites.
> I'd doubt if you would have more than 1-2 per year, if that.
>
> Thank you,
> Dee
>
>
> **********
> *********
> Deirdre Belle-Oudry

> Director of Academic Services
> Department of Chemistry and Biochemistry University of Arizona
> 1306 E. University Blvd.
> Tucson, AZ 85719
> (520) 621-9981
>
> CONFIDENTIALITY NOTICE: The information contained in this e-mail is privileged and confidential, and is intended only for the use of the individual or entity to which it is addressed. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution, electronic storage, or use of this communication is prohibited. If you received this communication in error, please notify us immediately by e-mail, attaching the original message, and delete the original message from your computer and any network to which your computer is connected.
>
>
>
> -----Original Message-----
> From: Doug Ulmer <ulmer@math.arizona.edu>
> Sent: Wednesday, October 9, 2019 2:51 PM
> To: Belle-Oudry, Deirdre A - (dbelle) <dbelle@email.arizona.edu>
> Cc: Sanov, Andrei M - (sanov) <sanov@email.arizona.edu>
> Subject: Re: Request for support for Biochemistry BS program change
>
> Dear Dee and Andrei,
>
> I forgot to add (i) we would in general be quite happy to have more CBC students taking this course provided we can develop enough capacity; and (ii) Prerequisites (which may limit enrollment quite a bit): Students must have completed math 223 (vector calculus) and have taken or be taking intro linear algebra (Math 313) or applied linear algebra (Math 310).
>
> Best wishes,
>
> Doug
>
>
>
>> On Oct 9, 2019, at 8:31 AM, Doug Ulmer <ulmer@math.arizona.edu> wrote:
>>
>> Dear Dee and Andrei,
>>
>> Thanks for getting in touch about this. Could you make a projection of the number of students in this program who would take Math/Data 363? We're experiencing strong demand for that course and would most likely not be able to accommodate anything like the 80 students mentioned in your message.
>>
>> Best wishes,
>>
>> Doug
>>
>>
>>
>>> On Oct 7, 2019, at 4:29 PM, Belle-Oudry, Deirdre A - (dbelle) <dbelle@email.arizona.edu> wrote:
>>>
>>> Dear Department Head,
>>>
>>> I am writing to ask for your support for a program change that we are making in the Biochemistry BS degree. We are eliminating an upper-level required course, BIOC 466 (Biochemistry of Nucleic Acids), from our curriculum. In place of this course, students will choose from a set of elective courses from various departments, including yours. The reason you are being asked about this is that there will be ~80 Biochemistry students per year

who may choose to enroll in these elective classes (we have ~300 Biochem BS students total). We want you to be aware of this potential enrollment increase, and let us know if you wish to remove your class from our list if this will be a problem.
>>>
>>> Also, please be aware that BIOC 466 will be offered for the last time in Spring 2020, in case any of your students are considering taking the class.
>>>
>>> Below is the list of electives that will be open to Biochemistry BS students:
>>>
>>> -CHEM 325 (2) Analytical Chemistry
>>> - CHEM 326 (2) Analytical Chemistry Laboratory -CHEM 450 (3)
>>> Synthetic and Mechanistic Organic Chemistry -CHEE 477R (3)
>>> Microbiology for Engineers -BME 486 (3) Biomaterial-Tissue
>>> Interactions -ECOL 320 or 320H (4/5) Genetics, -ECOL 326 (3)
>>> Genomics -ENVS 474 (4) Aquatic Plants and the Environment -MATH 363 (3) Intro.
>>> to Statistical Methods -MCB 304 (4-5) Molecular Genetics -MCB 325
>>> (3-4) The Biology of Cancer
>>> - MCB 410 (3-4) Cell Biology
>>> -MCB 411 (3-4) Molecular Biology
>>> -MCB 425 (3) Cancer Discoveries
>>> -MCB 480 (3) Intro. to Systems Biology -MIC 328R (3) Microbial
>>> Physiology, -PLP 428R (3) Microbial Genetics -MIC 452 (3)
>>> Antibiotics – A Biological Perspective -NSC 408 (3) Nutritional
>>> Biology -NSC 475
>>> (3) Nutrigenomics for the Study of Disease Prevention & Intervention
>>> -NSCS 307 (3-4) Cellular Neurophysiology -NROS 310 (3-4) Molecular
>>> and Cellular Biology of Neurons -NROS 430 (3) Neurogenetics -PCOL
>>> 410
>>> (5) Medicinal Chemistry -PHCL 412 (3) Intro. to Pharmacology -PLS
>>> 312
>>> (4) Animal and Plant Genetics -PLS 340 (3) Intro. to Biotechnology
>>> -PLS 359 (3) Plant Cell Structure and Function -PLS 360 (3) Plant
>>> Growth and Physiology -PLS 448a (3) Plant Biochemistry and Metabolic
>>> Engineering -PSIO 380(4) Fundamentals of Human Physiology -PSIO
>>> 404(3) Advanced Topics in Cellular Physiology -PSIO 420(3) Exercise
>>> and Environmental Physiology -PSIO 431 (3) Physiology of the Immune
>>> System -PSIO 484 (3) Cardiovascular Muscle Biology and Disease -PHYS
>>> 431(3) Molecular Biophysics
>>>
>>> If you support this program change, please reply to this email stating so (including the course numbers in your department that will be affected, or you may highlight them if you wish).
>>> We thank you for your assistance in this matter.
>>>
>>> Best regards,
>>>
>>> Dee Belle-Oudry
>>> Associate Head for Academic Affairs
>>> CBC Department
>>>
>>>
>>>
>>> **********
>>> *
>>> **********
>>> Deirdre Belle-Oudry
>>> Director of Academic Services
>>> Department of Chemistry and Biochemistry University of Arizona

>>> 1306 E. University Blvd.
>>> Tucson, AZ 85719
>>> (520) 621-9981
>>>
>>> CONFIDENTIALITY NOTICE: The information contained in this e-mail is privileged and confidential, and is intended only for the use of the individual or entity to which it is addressed. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution, electronic storage, or use of this communication is prohibited. If you received this communication in error, please notify us immediately by e-mail, attaching the original message, and delete the original message from your computer and any network to which your computer is connected.
>>
>>
>>
>> ==========
>> Douglas Ulmer
>> Professor and Head
>> Department of Mathematics
>> University of Arizona
>> Tucson, AZ 85721
>> ==========
>>
>>
>>
>

From: Belle-Oudry, Deirdre A - (dbelle)
To: Vanderah, Todd W - (vanderah)
Cc: Marquez, Martin - (martinmarquez)
Subject: RE: Request for support for Biochemistry BS program change
Date: Tuesday, October 8, 2019 8:19:26 AM

Thank you!

****

Deirdre Belle-Oudry
Director of Academic Services
Department of Chemistry and Biochemistry
University of Arizona
1306 E. University Blvd.
Tucson, AZ 85719
(520) 621-9981

From: Vanderah, Todd W - (vanderah) <vanderah@email.arizona.edu>
Sent: Monday, October 7, 2019 8:19 PM
To: Belle-Oudry, Deirdre A - (dbelle) <dbelle@email.arizona.edu>
Subject: Re: Request for support for Biochemistry BS program change

HI Dee Belle-Oudry,

I am in favor of having our course (PHCL 412 (3) Intro. to Pharmacology) as one of your electives.

Thanks,
Todd

Todd W. Vanderah
Professor and Head
Department of Pharmacology
University of Arizona, COM

From: Belle-Oudry, Deirdre A - (dbelle) <dbelle@email.arizona.edu>
Sent: Monday, October 7, 2019 4:29 PM
To: Belle-Oudry, Deirdre A - (dbelle) <dbelle@email.arizona.edu>
Cc: Sanov, Andrei M - (sanov) <sanov@email.arizona.edu>
Subject: Request for support for Biochemistry BS program change

Dear Department Head,

I am writing to ask for your support for a program change that we are making in the Biochemistry BS degree. We are eliminating an upper-level required course, BIOC 466 (Biochemistry of Nucleic Acids), from our curriculum. In place of this course, students will choose from a set of elective courses from various departments, including yours. The reason you are being asked about this is that there will be ~80 Biochemistry students per year who may choose to enroll in these elective classes (we have ~300 Biochem BS students total). We want you to be aware of this potential enrollment increase, and let us know if you wish to remove your class from our list if this will be a problem.

Also, please be aware that BIOC 466 will be offered for the last time in Spring 2020, in case any of your students are considering taking the class.

Below is the list of electives that will be open to Biochemistry BS students:

-CHEM 325 (2) Analytical Chemistry
- CHEM 326 (2) Analytical Chemistry Laboratory
-CHEM 450 (3) Synthetic and Mechanistic Organic Chemistry
-CHEE 477R (3) Microbiology for Engineers
-BME 486 (3) Biomaterial-Tissue Interactions
-ECOL 320 or 320H (4/5) Genetics,
-ECOL 326 (3) Genomics
-ENVS 474 (4) Aquatic Plants and the Environment
-MATH 363 (3) Intro. to Statistical Methods
-MCB 304 (4-5) Molecular Genetics
-MCB 325 (3-4) The Biology of Cancer
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-MCB 411 (3-4) Molecular Biology
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-NSC 475 (3) Nutrigenomics for the Study of Disease Prevention & Intervention
-NSCS 307 (3-4) Cellular Neurophysiology
-NROS 310 (3-4) Molecular and Cellular Biology of Neurons
-NROS 430 (3) Neurogenetics
-PCOL 410 (5) Medicinal Chemistry
-PHCL 412 (3) Intro. to Pharmacology
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-PLS 340 (3) Intro. to Biotechnology
-PLS 359 (3) Plant Cell Structure and Function
-PLS 360 (3) Plant Growth and Physiology
-PLS 448a (3) Plant Biochemistry and Metabolic Engineering
-PSIO 380(4) Fundamentals of Human Physiology
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-PSIO 420(3) Exercise and Environmental Physiology
-PSIO 431 (3) Physiology of the Immune System
-PSIO 484 (3) Cardiovascular Muscle Biology and Disease
-PHYS 431(3) Molecular Biophysics

If you support this program change, please reply to this email stating so (including the course numbers in your department that will be affected, or you may highlight them if you wish).
We thank you for your assistance in this matter.

Best regards,

Dee Belle-Oudry
Associate Head for Academic Affairs
CBC Department

****

Deirdre Belle-Oudry
Director of Academic Services
Department of Chemistry and Biochemistry
University of Arizona
1306 E. University Blvd.
Tucson, AZ 85719
(520) 621-9981

From: Belle-Oudry, Deirdre A - (dbelle)
To: Sumit Mazumdar
Cc: Marquez, Martin - (martinmarquez)
Subject: RE: Request for support for Biochemistry BS program change
Date: Tuesday, October 8, 2019 8:19:13 AM

Thank you!

****

Deirdre Belle-Oudry
Director of Academic Services
Department of Chemistry and Biochemistry
University of Arizona
1306 E. University Blvd.
Tucson, AZ 85719
(520) 621-9981

From: Sumit Mazumdar <smtmazumdar28@gmail.com>
Sent: Monday, October 7, 2019 5:33 PM
To: Belle-Oudry, Deirdre A - (dbelle) <dbelle@email.arizona.edu>
Subject: Re: Request for support for Biochemistry BS program change

We support this program change. The course number affected will be PHYS 431.

Sumit Mazumdar
Professor and Head
Department of Physics

On Mon, Oct 7, 2019 at 4:29 PM Belle-Oudry, Deirdre A - (dbelle) <dbelle@email.arizona.edu> wrote:

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Deirdre Belle-Oudry
Director of Academic Services
Department of Chemistry and Biochemistry
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1306 E. University Blvd.
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(520) 621-9981

From: Belle-Oudry, Deirdre A - (dbelle)
To: Marquez, Martin - (martinmarquez)
Subject: FW: Request for support for Biochemistry BS program change
Date: Tuesday, October 8, 2019 8:19:38 AM

****

Deirdre Belle-Oudry
Director of Academic Services
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Tucson, AZ 85719
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From: Delamere, Nicholas A - (delamere) <delamere@email.arizona.edu>
Sent: Monday, October 7, 2019 4:39 PM
To: Belle-Oudry, Deirdre A - (dbelle) <dbelle@email.arizona.edu>
Subject: Re: Request for support for Biochemistry BS program change

Dierdre

The proposed change has the support of the Department of Physiology,

Nick D

Nick Delamere Ph.D.
Head, Department of Physiology
University of Arizona
PO Box 245051
Tucson, AZ 85724-5051

(520) 626 6425

From: Belle-Oudry, Deirdre A - (dbelle) <dbelle@email.arizona.edu>
Sent: Monday, October 7, 2019 4:29 PM
To: Belle-Oudry, Deirdre A - (dbelle) <dbelle@email.arizona.edu>
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