

## GRADUATE COUNCIL: NEW COURSE/PROGRAM PROPOSAL

**Originating Unit:** Biology

**Type of action:**  New course  New program  Fully online course/program\*\*

**Semester and year course/program will take effect:** Spring 2022

**New course or program title:** Immunobiology of Disease

**Appropriate computer abbreviation (30 spaces or less):**

**Course instructional methodology:** Lecture

course component types: [gradcouncil.tcu.edu/forms/Course Component Types.pdf](http://gradcouncil.tcu.edu/forms/Course%20Component%20Types.pdf)

### *Programs Only*

Proposed code (list 2): \_\_\_\_\_ or \_\_\_\_\_  
(ex:EDCE-PHD)

Proposed CIP Code:

\*for reference please visit: [nces.ed.gov/ipeds/cipcode/resources.aspx?y=56](http://nces.ed.gov/ipeds/cipcode/resources.aspx?y=56)

**New course number:** BIOL 60263

### **Prerequisites for new course:**

BIOL 30304 (Microbiology) or BIOL 40254 (Immunology) or permission of the instructor.

**Description of new course or program (catalog copy):**

This lecture-based course features current research in Immunology that focuses on how manipulations of the innate or adaptive immune system can modulate disease states. This includes how microbes overcome immune defenses, failures in immune system function and how the immune system can be therapeutically modified to treat disease.

## Fully Online Courses/Programs\*\*

All online programs, courses, and /or distance learning offerings must meet State Compliance regulations as defined by specific state legislation. TCU Distance Learning is any for-credit instruction provided to a TCU student outside the State of Texas. This includes internships, clinical, video conferencing, online, or any other delivery format that crosses state lines. Contact the Koehler Center for Teaching Excellence for guidelines. Include a letter of support from the Koehler Center with this proposal.

**Supporting evidence or justification:** (For a new course, attach proposed syllabus, including course objectives, course outline, and representative bibliography. For a new program attach a statement of the mission and objectives of the new program):

### Describe the intended outcomes of the course or program and how they will be assessed.

- To gain experience in reading, evaluating and discussing primary scientific literature.
- To increase students understanding of the immune system including the innate and adaptive immune system, interactions with infectious agents, strategies to modulate immune system function and current research methodologies.
- To provide students an opportunity to improve public speaking and communication skills.

Students will be assessed through written exams, quizzes, participation in-class discussions, and an oral presentation.

### Additional resources required:

**Faculty:** none—current faculty will teach the course.

**Space:** none

**Equipment:** none

**Library:** none

**Financial Aid:** none

**Other:** none

**Change in teaching load:** none—this course will replace a previous course taught in the department.

**Does this change affect any other units of the University?**  Yes  No

*If yes, submit supporting statement signed by chair of affected unit.*

**If cross-listed, provide evidence of approval by all curriculum committees appropriate to both the originating and the cross-listed units.**

**Chair of Originating Unit:**

**Name:** Giri Akkaraju

**Unit:** Department of Biology

**Signature:**

A handwritten signature in blue ink, appearing to read "Giri Akkaraju", enclosed within a thin black rectangular border.

## Immunobiology of Disease

**Instructors:** Dr. Shauna McGillivray & Dr. Michael Chumley

**Course Zoom link:** Class will meet online-only via Zoom at <https://tcu.zoom.us/j/93981638882>.

**Dr. McGillivray:**

**Office phone:** 817-257-6178    **Zoom office:** <https://tcu.zoom.us/j/8172576178>

**Email:** [s.mcgillivray@tcu.edu](mailto:s.mcgillivray@tcu.edu)

**Office hours via Zoom:** Thursday 2-3. I can also meet via appointment.

**Dr. Chumley:**

**Office phone:** 817-257-8777    **Zoom Office:** <https://tcu.zoom.us/j/7530218071>

**Email:** [m.chumley@tcu.edu](mailto:m.chumley@tcu.edu)

**Office hours:** Wednesday 11 am -12 pm or by an appointment.

**Course description:** This lecture-based course will focus on advanced topics in immunology featuring both the innate and adaptive immune system. This includes how microbes overcome immune defenses, failures in immune system function and how the immune system can be modulated to treat disease.

**Course prerequisites:** Undergraduate coursework in Immunology or Microbiology or permission of the instructor

**Course Objectives**

- To gain experience in reading, evaluating and discussing primary scientific literature.
- To increase students understanding of the immune system, its strengths and limitations. This includes knowledge of the innate and adaptive immune system, interactions with infectious agents, strategies to modulate immune system function and current research methodologies.
- To provide students an opportunity to improve public speaking and communication skills.

**Prerequisites:** Prior coursework in immunology or microbiology highly recommended.

**Readings:** Readings are peer-reviewed journal articles and will be available on TCU online. There is no required textbook although you may find useful background information in the following free online textbooks covering topics in [general microbiology](#) and [medical microbiology](#).

**Lecture format:** Each class will include a discussion of the assigned readings. Students are expected to have read assigned papers before class and come prepared for discussion.

**Grading:** Grades are based on class participation (10%), quizzes or assignments (7%), 3 essay exams (20% each), an oral presentation (20%) and a quiz over student presentations (3%).

**Class participation:** Points will be awarded for attendance, engagement in class discussion and completion of in-class activities. The lowest class participation grade will be dropped.

**Quizzes:** There will be a mix of quizzes and assignments to help assess student preparation and progress throughout the semester and these may be either individual or group quizzes/assignments. Some will take place in class and some will be assigned outside of class. In-class quizzes/assignments may be unannounced (i.e. "pop quizzes"). The lowest quiz grade will be dropped.

**Student Presentations:** Each student must choose a primary paper (subject to instructor approval) within the field of Immunology & disease, which everyone in the class will read. The graduate student will give a short overview on the topic (10-15 min) and they will then lead a class discussion of their primary paper over an entire 80 minute class period. The student will essentially be the “professor for the day” and they are expected to have a level of understanding of the paper sufficient to explain all figures and answer all student questions that may arise. They must also actively engage all members of the class during class discussion. Students will then write 1-2 exam questions (approximately 10 pts) over their primary paper for the quiz over student presentations and they are responsible for grading the student responses to those questions. Questions must be turned into course instructors in advance and may require revision before final approval. Students are also expected to take the remaining questions on the quiz over student presentations (i.e. the questions they did not write).

**Exams:** Exams are primarily short answer/essay format and questions will come from class discussions, lectures and/or assigned articles and readings.

**Course grade scale:**

A ≥ 90.0%; B ≥ 80.0%; C ≥ 70.0%; F < 70.0%

**Make-up work and grading errors:** Exams can only be made up for absences due to official university activities (professor must be notified *in advance in writing*) or illness and family emergencies verified by documentation from a health professional. If you miss an exam due to illness/emergency, you have 24 hours from the exam date to contact the professor and schedule a make-up exam. Arrangements for absences due to university activities must be made beforehand. Pop quizzes and participation points cannot be made up, but points missed for excused absences will not be included in the final grade. Students are still expected to know the material covered on days they were absent.

If you believe I have made a grading error, please report it within two weeks or before the final exam, whichever comes first. No grade changes will be made after the two-week time limit.

**Attendance:** A primary component of this course is class discussion therefore attendance is mandatory and will be recorded. Excused absences (see above) will be accommodated.

**TCU online:** Course materials including grades, pdfs of assigned readings and lecture presentations will be posted on TCU online.

**Email:** All communications will be sent to your official TCU email address only. Students are responsible for monitoring their email.

**Disability statement:** Texas Christian University complies with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973 regarding students with disabilities. Eligible students seeking accommodations should contact the Coordinator of Student Disabilities Services in the Center for Academic Services located in Sadler Hall, 1010. Accommodations are not retroactive, therefore, students should contact the Coordinator as soon as possible in the term for which they are seeking accommodations. Further information can be obtained from the Center for Academic Services, TCU Box 297710, Fort Worth, TX 76129, or at (817) 257-6567

### Lecture Schedule\*

\*Reading assignments and schedule are subject to change.

Week	Date	Topic	Readings & assignments due before class
1	Tues Jan 19	Course overview & intro to stats	See TCU online
	Thurs Jan 21	Overview of the innate immune system	See TCU online
2	Tues Jan 26	Host vs pathogen	See TCU online Thammavongsa et al. 2013 (Science)
	Thurs Jan 28	Host vs pathogen	Thammavongsa et al. 2013 (Science)
3	Tues Feb 2	Treating infection: blocking the innate immune system	Huang et al. 2018
	Thurs Feb 4	<b>Library session</b>	<b>Presentation topics due</b>
4	Tues Feb 9	Treating infection: blocking the innate immune system	Huang et al. 2018 (finish discussion)  Kim et al. 2018 (start discussion)
	Thurs Feb 11	Treating infection: blocking the innate immune system	Kim et al. 2018
5	Tues Feb 16	Unintended interactions: the microbiome and innate immune system	Tang et al. 2017
	Thurs Feb 18	Unintended interactions: the microbiome and innate immune system	Tang et al. 2017
6	Tues Feb 23	The microbiome and COVID-19	Yeoh et al. 2021
	<b>Thurs Feb 25</b>	<b>Exam #1 (McGillivray)</b>	
7	Tues Mar 2	Overview: Adaptive Immunity	Bonilla and Oettgen, <i>J All Clin Immunol</i> , <b>125</b> , S33 (2010)
	Thurs Mar 4	SARS CoV-2 discussion	Article to be determined – Be prepared to do some research over the Spring Refresh! <b>Primary papers &amp; summary due</b>
<b>8</b>	<b>Mar 9-11</b>	<b>Spring Refresh</b>	
9	Tues Mar 16	SARS-CoV-2 Vaccine Design/Efficacy	Article to be determined

	Thurs Mar 18	Tuberculosis Vaccine Efficacy	Darrah, <i>et al.</i> , <i>Nature</i> 577, 95 (2019)
10	Tues Mar 23	Tuberculosis Vaccine Efficacy, Cont'd	Darrah, <i>et al.</i> , <i>Nature</i> 577, 95 (2019)
	Thurs Mar 25	CAR-T Cells	Kansal, <i>et al.</i> , <i>Sci. Transl. Med.</i> 11 (2019)
11	Tues Mar 30	CAR-T Cells, Cont'd	Kansal, <i>et al.</i> , <i>Sci. Transl. Med.</i> 11 (2019)
	Thurs Apr 1	Microglia and Alzheimer's Disease	Spangenberg, <i>et al.</i> , <i>Nature Comm.</i> 10 (2019)
12	Tues Apr 6	Microglia and Alzheimer's Disease, Cont'd	Spangenberg, <i>et al.</i> , <i>Nature Comm.</i> 10 (2019)  <b>Make an appointment with Dr. Chumley or Dr. McGillivray to review slides approx. 1 week before your presentation</b>
	<b>Thurs Apr 8</b>	<b>Exam #2 (Chumley)</b>	
13	Tues Apr 13	student paper discussion	
	Thurs Apr 15	student paper discussion	
14	Tues Apr 20	student presentations	
	Thurs Apr 22	student presentations	
15	<b>Tues Apr 27</b>	<b>Quiz on oral presentations</b>	
	Thurs Apr 29	TBD	
	<b>Tuesday May 4</b>	<b>Exam #3</b>	

Last day to drop Wednesday April 7<sup>th</sup> and last day to select P/NC Thursday April 8<sup>th</sup>

### Syllabus Disclosures Spring 2021

**Zoom:** Our class sessions will typically NOT be recorded. However, there may be select times when we do record a class session for use by enrolled students, including those who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are consenting to have their video or image recorded. If you do not wish to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are consenting to have their voices recorded. If you do not wish to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. Further, if you anticipate that you will not consent to your video and/or audio participation being recorded, please contact the instructor



immediately so the instructor may work with you to determine how to assess your class participation and assignments that may require collaboration during the class session.

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### **Campus Life and the Student Experience will Be Different This Year**

The health and safety of students, faculty, and staff is Texas Christian University's highest priority. TCU has implemented public health interventions, which includes following local and state public health orders and CDC guidelines. These health interventions may impact your experience as a student both inside and outside the classroom. Safety protocols may change during the semester and may result in modifications or changes to the teaching format, delivery method, or the course schedule (e.g., altering meeting times or frequency; changing beginning or ending dates for a term; or partially or completely moving from a face-to-face classroom teaching to an online teaching or remote learning format). Any changes in teaching format, delivery method, or course schedule will not impact the credit hours for the course.

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### **Health and Wellness**

If you are exhibiting symptoms that may be related to COVID-19 (fever or chills, dry cough, shortness of breath, etc.) or are concerned that you may have been exposed to COVID-19, you must self-quarantine and consult with the Brown Lupton Health Center at 817-257-7949 for further guidance.

In addition, you must notify the Campus Life Office immediately at 817-257-7926 or use the TCU COVID-19 Self-Report Hotline, 817-257-2684 (817-257-COVI). Campus Life will inform your professors that you are unable to attend class, and provide any assistance and support needed. Click here for detailed information concerning COVID-19 symptoms:  
<https://www.cdc.gov/coronavirus>.

If you are unwell, but are not exhibiting potential COVID-19-related symptoms, please notify your instructor as soon as possible that you are ill and will not be attending class.

If you do not feel well enough to attend class in person, but feel well enough to attend class remotely, please notify your instructor as soon as possible before the class begins to arrange attendance via video conferencing.

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### **Face Coverings and Physical Distancing**

Face coverings are required on campus, unless you are alone in your private office or dorm room. Students are expected to practice physical distancing and wear protective face coverings at all times while in public spaces on the TCU campus. Failing to do so in the classroom could result in the student being asked to leave the room and continue the class through remote access. Additionally, the instructor has the option to terminate the class period and continue it as a

remote session. Failure to comply with the instructor's request to adhere to TCU policy regarding face coverings or repeat violations may be reported to Campus Life.

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### **TCU Policy for Religious Observations & Holidays**

"Students who are unable to participate in a class, in any related assignment or in a university required activity because of the religious observance of a holy day shall be provided with a reasonable opportunity to make up the examination or assignment, without penalty, provided that it does not create an unreasonable burden on the University." For more information, please visit the [TCU Policy for Religious Observations & Holidays](#) webpage.

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### **Student Access and Accommodation**

Texas Christian University affords students with disabilities reasonable accommodations in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. To be eligible for disability-related academic accommodations, students are required to register with the TCU Office of Student Access and Accommodation and have their requested accommodations evaluated. Students are required to provide instructors an official TCU notification of accommodation approved through Student Access and Accommodation. More information on how to apply for accommodations can be found at <https://www.tcu.edu/access-accommodation/> or by calling Student Access and Accommodation at (817) 257-6567. Accommodations are not retroactive and require advance notice to implement.

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### **Student Access and Accommodation Audio Recording Notification:**

Audio recordings of class lectures are permitted for students as an approved disability accommodation through Student Access and Accommodation. Recordings are not to be shared with other students, posted to any online forum, or otherwise disseminated. By participating in this course, you are giving your implied consent to this recording. If you anticipate that you will not consent to your audio participation being recorded, please contact the instructor immediately so the instructor may work with you to determine how to assess your class participation and assignments that may require collaboration during the class session.

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### **Technology Policies**

#### **Email**

Only the official TCU student email address will be used for all course notification. It is your responsibility to check your TCU email on a regular basis.

#### **Course Materials**

TCU students are prohibited from sharing any portion of course materials (including videos, PowerPoint slides, assignments, or notes) with others, including on social media, without written permission by the course instructor. Accessing, copying, transporting (to another person or location), modifying, or destroying programs, records, or data belonging to TCU or another user

without authorization, whether such data is in transit or storage, is prohibited. The full policy can be found at: <https://security.tcu.edu/polproc/usage-policy/>.

**Violating this policy is considered a violation of Section 3.2.15 of the Student Code of Conduct** (this policy may be found in the Student Handbook at <https://tcu.codes/code/index/>), **and may also constitute Academic Misconduct or Disruptive Classroom Behavior** (these policies may be found in the undergraduate catalog at

<https://tcu.smartcatalogiq.com/current/Undergraduate-Catalog/Student-Policies/Academic-Conduct-Policy-Details>). TCU encourages student debate and discourse; accordingly, TCU generally interprets and applies its policies, including the policies referenced above, consistent with the values of free expression and First Amendment principles.

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## Anti-Discrimination and Title IX Information

### Statement on TCU's Discrimination Policy

TCU prohibits discrimination and harassment based on age, race, color, religion, sex, sexual orientation, gender, gender identity, gender expression, national origin, ethnic origin, disability, predisposing genetic information, covered veteran status, and any other basis protected by law, except as permitted by law. TCU also prohibits unlawful sexual and gender-based harassment and violence, sexual assault, incest, statutory rape, sexual exploitation, intimate partner violence, bullying, stalking, and retaliation. We understand that discrimination, harassment, and sexual violence can undermine students' academic success and we encourage students who have experienced any of these issues to talk to someone about their experience, so they can get the support they need.

- [Review TCU's Policy on Prohibited Discrimination, Harassment and Related Conduct or to file a complaint: https://titleix.tcu.edu/title-ix/](#).
- [Learn about the Campus Community Response Team and Report a Bias Incident: https://titleix.tcu.edu/campus-community-response-team/](#)

### Statement on Title IX at TCU

As an instructor, one of my responsibilities is to help create a safe learning environment on our campus. It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep any information you share private to the greatest extent possible. However, I have a mandatory reporting responsibility under TCU policy and federal law and I am required to share any information I receive regarding sexual harassment, discrimination, and related conduct with TCU's Title IX Coordinator. Students can receive confidential support and academic advocacy by contacting [TCU's Confidential Advocate in the Campus Advocacy, Resources & Education office](#) at <https://care.tcu.edu/> or by calling (817) 257-5225 or the [Counseling & Mental Health Center](#) at <https://counseling.tcu.edu/> or by calling (817) 257-7863. [Alleged violations can be reported to the Title IX Office](#) at <https://titleix.tcu.edu/student-toolkit/> or by calling (817) 257-8228. Should you wish to make a confidential report, the Title IX Office will seek to maintain your privacy to the greatest extent possible, but cannot guarantee confidentiality. Reports to law enforcement can be

made to the Fort Worth Police Department at 911 for an emergency and (817) 335-4222 for non-emergency or TCU Police at (817) 257-7777.

### **Obligations to Report Conduct Raising Title IX or VAWA Issues**

Mandatory Reporters: All TCU employees, except Confidential Resources, are considered Mandatory Reporters for purposes of their obligations to report, to the Coordinator, conduct that raises Title IX and/or VAWA (Violence Against Women Act) issues.

Mandatory Reporters are required to immediately report to the Coordinator information about conduct that raises Title IX and/or VAWA issues, including any reports, complaints or allegations of sexual harassment, discrimination and those forms of prohibited conduct that relate to nonconsensual sexual intercourse or contact, sexual exploitation, intimate partner violence, stalking and retaliation involving any member of the TCU community, except as otherwise provided within the [Policy on Prohibited Discrimination, Harassment and Related Conduct](#).

Mandatory Reporters may receive this information in a number of ways. For example, a complainant may report the information directly to a Mandatory Reporter, a witness or third-party may provide information to a Mandatory Reporter, or a Mandatory Reporter may personally witness such conduct. A Mandatory Reporter's obligation to report such information to the Coordinator does not depend on how he/she received the information. Mandatory Reporters must provide all known information about conduct that raises Title IX or VAWA issues to the Coordinator, including the identities of the parties, the date, time and location, and any other details. Failure of a Mandatory Reporters to provide such information to the Coordinator in a timely manner may subject the employee to appropriate discipline, including removal from a position or termination of employment.

Mandatory Reporters cannot promise to refrain from forwarding the information to the Coordinator if it raises Title IX or VAWA issues or withhold information about such conduct from the Coordinator. Mandatory Reporters may provide support and assistance to a complainant, witness, or respondent, but they should not conduct any investigation or notify the respondent unless requested to do so by the Coordinator.

Mandatory Reporters are not required to report information disclosed (1) at public awareness events (e.g., "Take Back the Night," candlelight vigils, protests, "survivor speak-outs," or other public forums in which students may disclose such information (collectively, public awareness events); or (2) during an individual's participation as a subject in an Institutional Review Board approved human subjects research protocol (IRB Research). TCU may provide information about Title IX rights and available resources and support at public awareness events, however, and Institutional Review Boards may, in appropriate cases, require researchers to provide such information to all subjects of IRB Research.

Relevant reporting phone numbers are: 911 for an emergency and (817) 335-4222 for non-emergency or TCU Police at (817) 257-7777.

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*[The following template text has been provided by the Assistant Vice Chancellor for Public Safety after approval by the Student Government Association (SGA) for inclusion in TCU syllabi. Online students may find themselves on campus using TCU resources (ex: library, writing center, health*

center) or attending events. The following safety information may be useful in the event of an emergency or if students receive TCU Alert updates.]

### **Emergency Response Information**

Please review [TCU's L.E.S.S. is More public safety video](#) to learn about Lockdown, Evacuate, and Seek Shelter procedures. (<https://publicsafety.tcu.edu/less-is-more/>)

[TCU's Public Safety website](#) provides maps that show our building's rally point for evacuation and the seek shelter location. (<https://publicsafety.tcu.edu/>)

In the event of an emergency, call the TCU Police Department at **817-257-7777**.

Download the [Frogshield Campus Safety App](#) on your phone. (<https://police.tcu.edu/frogshield/>)

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### **Academic Misconduct**

Academic Misconduct (Sec. 3.4 from the [TCU Code of Student Conduct](#)): Any act that violates the academic integrity of the institution is considered academic misconduct. The procedures used to resolve suspected acts of academic misconduct are available in the offices of Academic Deans and the Office of Campus Life and are also listed in detail in the [Undergraduate Catalog](#) and the [Graduate Catalog](#) Specific examples include, but are not limited to:

- **Cheating:** Copying from another student's test paper, laboratory report, other report, or computer files and listings; using, during any academic exercise, material and/or devices not authorized by the person in charge of the test; collaborating with or seeking aid from another student during a test or laboratory without permission; knowingly using, buying, selling, stealing, transporting, or soliciting in its entirety or in part, the contents of a test or other assignment unauthorized for release; substituting for another student or permitting another student to substitute for oneself.
- **Plagiarism:** The appropriation, theft, purchase or obtaining by any means another's work, and the unacknowledged submission or incorporation of that work as one's own offered for credit. Appropriation includes the quoting or paraphrasing of another's work without giving credit therefore. *[If you are using Turnitin, place information about your course ID/password or state that items will be checked as part of the TCU Online assignment submission process. If you want to use Turnitin as a spot check, indicate that you may use Turnitin for plagiarism detection.]*
- **Collusion:** The unauthorized collaboration with another in preparing work offered for credit.
- **Abuse of resource materials:** Mutilating, destroying, concealing, or stealing such material.
- **Computer misuse:** Unauthorized or illegal use of computer software or hardware through the TCU Computer Center or through any programs, terminals, or freestanding computers owned, leased or operated by TCU or any of its academic units for the purpose of affecting the academic standing of a student.
- **Fabrication and falsification:** Unauthorized alteration or invention of any information or citation in an academic exercise. Falsification involves altering information for use in any academic exercise. Fabrication involves inventing or counterfeiting information for use in any academic exercise.

- **Multiple submission:** The submission by the same individual of substantial portions of the same academic work (including oral reports) for credit more than once in the same or another class without authorization.
- **Complicity in academic misconduct:** Helping another to commit an act of academic misconduct.
- **Bearing false witness:** Knowingly and falsely accusing another student of academic misconduct.