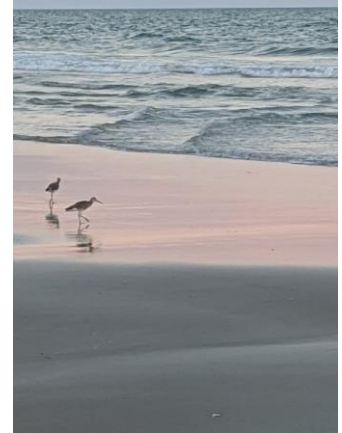


Biodiversity, Ecology and Conservation Biology

Biology 211

College of Charleston, Department of Biology
Fall 2020



What are our class meeting times? →

Lecture: 211 (sections 08) MW 2-315 pm room RITA 273 or on ZOOM
Discussion: 211D-08 Tu 145 pm-445pm. Room: RITA 271 or on ZOOM
See OAKS for zoom links

Who is the professor? → *Dr. Courtney Murren (she/her)*

Where to contact me? → **Office:** RITA 227 – when campus is open
Office Phone: 843-953-8077

Email: murrenc@cofc.edu (best way to reach me)

Office hours: 10:00am-11 Tues and by appointment. See OAKS for ZOOM link.



This is a hybrid learning course.

HYBRID COURSE SCHEDULE (as of 8/15/2020):

AUG26-SEPT9: Zoom during class meeting time (synchronous)

SEPT14-NOV18: Hybrid portion of the course.

See weekly GOOGLE Doc schedule on Oaks for Mask-to-Mask in person meeting dates & zoom meeting dates during scheduled class time, see also quarantine adaptation below.

NOV 23-DEC4: Zoom during class meeting time (synchronous).

Do you require a fully-on-line semester – contact me.

The syllabus is subject to change – as new campus-wide policies are announced
UPDATES will be POSTED

What topics will we explore and develop together?

Instructional Objectives – COMMON to ALL BIOLOGY 211 SECTIONS

This course is intended to foster an understanding of the diverse ways organisms interact with the environment, the fundamental principles of ecology, evolution, and conservation biology, and to learn about the three domains of biodiversity on Earth. More specifically as a student in this course you will

- review evolution, initially developed by Charles Darwin, and supported by modern data
- explore the modern synthetic view of evolution which integrates genetics, molecular biology and many other areas of biology into an explanation of how evolution occurs.
- explore mechanisms (or processes) of evolution including
 - how populations evolve at the genetic level (evolutionary genetics)
 - how new species arise (speciation)
 - how biologists are revealing the way life diversified on earth and what the current “tree of life” looks like (systematics & phylogeny)
- explore the evidence in support of evolutionary theory and processes.
- explore the features of the diverse species that inhabit the planet to discover
 - the anatomical, physiological and behavioral associations between related groups of organisms
 - the contributions of the diverse groups of living organisms to ecological systems and human welfare
 - an astonishing variety of lifestyles, traits, and solutions to the challenges of life
- explore how populations change in abundance and distribution (population ecology)
- explore ecological interactions between species (community ecology)
- explore processes and changes that occur at the level of ecosystems
- apply evolutionary and ecological concepts and theories to issues related to the conservation of biodiversity on earth (conservation biology)

Student Learning Outcomes

At the end of this course, students are expected to be able to:

- **describe the processes by which populations of organisms change in size**
- **explain the forces that lead to evolutionary change in populations and diversification among species**
- **interpret phylogenetic trees to comprehend the evolutionary relationships they depict**
- **discuss how interactions with the physical environment and with other organisms influence populations and communities**



- **build a foundation of knowledge about life's diversity and its interrelatedness**
- **apply ecological and evolutionary principles to the conservation of biodiversity**
- **apply the following skills used by professional biologists: use primary literature, generate scientific questions and pose testable hypotheses, analyze data to evaluate hypotheses, use quantitative models to describe biological processes, and communicate these to a scientific audience.**

Special to our section, we will learn skills transferable to all of biology (including medicine) through participation in a **CURE** (Course Based Research Experience)—where you are the scientist and participate in biological discovery. We will share our rigorously curated data with students and researchers. We will also participate in Community Science projects adding to global data.

The first two thirds of the course are conceptual and quantitative in ecology evolution and conservation.

We will graph, model, work with data, problem solve.

Problem sets for practice with peers in class, and quizzes to develop these skills.

In the third section of the course, we will explore the diversity of life on the planet!

We will synthesize knowledge and build understanding of inter-relatedness of species.

We will also talk about COOL CREATURES!

Quiz 1 what is this species → (hint collected in coastal Carolina)

What are the D sections? → Discussion sessions:

The discussion sections are where we build *science skills for your major and beyond!*

We will build skills tools of how scientists (from medicine to ecology) do science.

We will analyze data, communicate science and write in many formats.

Students will work both independently and in groups

⇒ skills of scientists to work respectfully with others and work effectively alone.

In the discussion sections, we will investigate several research projects and practice science as scientists.

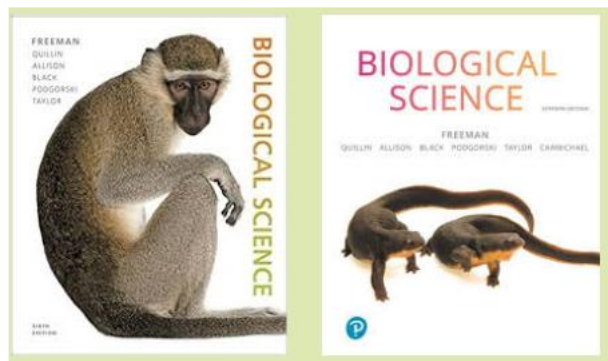


Prerequisites for this course include Biology 111, Biology 111L, Biology 112 and Biology 112L. Successful completion of these courses is required for enrollment in 211. Recommended pre/co-req. Math250 or equivalent. Suggested Math knowledge: through algebra or pre-calculus.

Texts: Biological Science 6th edition, Freeman*
let me know if you have another edition.

Required Equipment: Computer with video & audio capabilities, Adobe Acrobat or other PDF reader, Access to Google Drive, CofC Zoom account. Headphones recommended

Course Policies



Lecture attendance: Attendance in lecture will set you on the road to success in this course.

Pre lecture – prepare by watching short VoiceThread’s. During lecture, we will share examples from the recent literature, discuss ideas and work on real-science problems.

Final exams times are designated by the registrar’s office see policy at:
<https://registrar.cofc.edu/calendars/#FES>

Scientific Communication (Sci-Comm):

Each student will sign up for a particular class-day for sci-comm (current event).

Post a link to a news article

We will start each class with a brief summary of the news article

Make connections to the global press

Learn about ecological devastation and successes in sustainability and connection

Note-taking: I consider note taking an important skill to develop as a student. I’ll provide tools and tips to help you succeed.

Problem sets will also help with mastery of the exciting world of ecology, conservation and biodiversity.

Discussion attendance: Discussion is a *required* component of this course, and participation is *mandatory*. Discussion as lecture will be hybrid – mixture of in person, field trips, workshops and Zoom. Let me know if you require all-Zoom accommodation for all or part of the term. We are in a pandemic! If you are ill/other and miss a discussion section, contact me to build a plan!

BACK TO THE BRICKS <https://cofc.edu/back-on-the-bricks/>: Masks, desk wiping, 6ft social distancing will be practiced in our class according to the CofC Back to the Bricks plans. Additionally, we will follow the guidelines on the CofC Back to the Bricks about when to attend remotely and when to return to in-person class. Accommodations available – please email me.

BACK TO THE BRICKS: Computers: All students are required to have computers. Have a chromebook instead of a laptop? Let me know. Need help accessing a laptop? All assignments will be required to be completed on a word processor (or other necessary software (especially Excel, Powerpoint, etc. available to all students)).

Covid – We are in a pandemic:

With the unexpected nature of COVID for ourselves or others in our care, I will work with students individually to develop a plan to be able to continue to make progress in the course. **To do so: *Please communicate***. Please contact me should you require accommodations.

If you miss 2 classes without communication or substantial engagement on OAKS, I will activate the campus-wide FAST system to ensure that you get the campus help that you might need (financial, medical, etc services).

What are the solutions to extended quarantine/absence? There are numerous solution, student specific and require communication to continue to make progress and be successful in this course. For major changes, such as a semester incomplete - the registrar requires both faculty AND student signatures for the paperwork for an end of term incomplete grade of “I”. Medical W is also available through appropriate paperwork. Please, reach out to discuss if either of these solutions are needed.

Assignments and late policy: Many projects are scaffolded such that assignments build upon each other. Turn in assignments on OAKS. Late work will be accepted, however, please note my return of graded work may also be delayed. Meeting deadlines will help with success.

What happens if Dr. Murren is ill/quarantined? If I become quarantined at home but otherwise able to function, I will continue to teach via Zoom. If I become ill to the point where I am unable to teach, the department chair Dr. Pritchard has a backup plan in place and will communicate with you on your CofC email.

Class Courtesies & Netiquette:

You belong here. So do each of the registered students. Please show respect for their time, ideas.

- Be on time, put cell phones, watches and other devices that beep in silent mode.
- Emergency during class, please slip out of the room and return when you are able.
- Do not eat, drink or smoke or vape in the laboratory or on field excursions.

!!!!Do study, do ask questions, do participate in class activities, be courteous and respectful to your colleagues. Bring your enthusiasm – it is contagious!!!!

Academic integrity: COFC Honor code brings respect to our campus, our degrees and to Cougar alumni.

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved.

Incidents where the instructor determines the student's actions are related more to a misunderstanding will be handled by the instructor. A written intervention designed to help prevent the student from repeating the error will be given to the student. The intervention, submitted by form and signed both by the instructor and the student, will be forwarded to the Dean of Students and placed in the student's file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student's transcript for two years after which the student may petition for the XX to be expunged. The F is permanent.

Students should be aware that unauthorized collaboration--working together without permission-- is a form of cheating. Unless the instructor specifies that students can work together on an assignment, quiz and/or test, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), copying from others' exams, fabricating data, and giving unauthorized assistance. Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor. Students can find the complete Honor Code and all related processes in the Student Handbook at <http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php>

If you have questions on how to properly cite, paraphrase or document literature sources, consult me for assistance – please come to office hours. I'm happy to help!

**Plagiarism will result in a zero, potential failure an honor board referral.
Honor and respect your colleagues, ask for help from your professor, ask for an extension.**

How can I be successful in this course?

Tips for success with lecture material- coming to class having already read the material as presented in the text

- 1) engaged participation with problem sets and group work in class
- 2) taking notes on the text and coming to class with questions.
- 3) re-writing your notes from class including graphs and phylogenies, making flash cards
- 4) studying by setting up study sessions and actively quizzing a classmate
- 5) use textbook additional resources with additional quantitative problems
- 6) complete weekly quizzes on oaks

Students who succeed develop skills in learning how to study that matches their learning style outside of the classroom.

I'm happy to help you identify and develop new skills.

I'll emphasize skills and approaches to help further develop good study/professional skills that go beyond the biology classroom and are important for a large variety of careers.

Zoom Practices for an engaging and respectful class --

- When you arrive to zoom class, “mute” yourself. The pause to wait for each of us to ‘unmute’ is part of the new rhythm.
- Recommended: use headphones.
- Please come prepared as you would for class in person.
- Signs that you are talking but not off mute can be communicated with the video on. However, video is optional.
- Consider a blank wall behind your camera view or employing a CofC Zoom background. When using a camera, recommendation of good lighting and the camera is at your face level. (I use old textbooks to raise my laptop up for Zoom).
- Computer acting up? You can use your cell phone to call in to class via Zoom.
- Use the raise hand, thumbs up and clap options to engage!
- Feel free to use the chat too with links to discussion topics or if you’re having technical audio/visual issues.
- Change your Zoom name to your preferred name. Feel welcome to include use pronouns.
- If you are having trouble with speakers or microphone, test with the arrow beside the mute button and select “Test Microphone and Speakers”

Communication:

Questions? Contact me → Zoom office hours and by email.

I will respond to emails and discussion board questions w/in 1 day

Weekends, I will respond as soon as I can no later than Monday.

I will use OAKS to communicate and send all-class emails.

Connect with other students!

Networking with your classmates is excellent for science and life!

Feel free to post on the discussion thread if you’re looking to build zoom study groups.

Mutual respect:

Arrive on time, follow zoom tips, be polite to others, stay on topic, respect the scientists who conducted the scholarship. Respect opinions if they differ from your own. When in doubt, reply with kindness. Let’s be positive change-makers!

Lecture Schedule

Wednesday Aug 26, 2020 –

Introductions – Ecology of the planet in a changing world.

Readings: Ch 1

Monday August 31, 2020 –

Introduction to Conservation Biology and Evolving Populations –

Readings: Ch 54, 22

Wednesday September 2, 2020 –

Evolutionary Mechanisms-- Natural Selection

Readings: Ch 22

Monday September 7, 2020 –

Population Genetics –

Readings: Ch 23, Bioskills 4

Monday September 9, 2020 –

Evolutionary Process –

Readings: Ch 23

September 14, 2020 (**BACK TO THE BRICKS**)

Evolution to Ecology–

Readings: Ch 49 & 51

September 16, 2020 –

Population Growth and Human Ecology–

Readings: Ch 51

September 21, 2020

Community Ecology and Competition –

Readings: Ch 52

September 23, 2020 –

Predation, Herbivory and Parasitism –

Readings: Ch 52

September 28, 2020 –

Parasitism, Mutualism and Communities —

Readings: Ch 52

September 30, 2020 – EXAM I

October 5 2020

Community Structure –

Readings: Ch 52 & 54

October 7, 2020

Ecosystem Ecology —

Readings: Ch 49 & 53

October 12, 2020

Biogeochemistry, Climate and Biogeography –

Readings: Ch 53

October 14, 2020

Origins of Biodiversity and Phylogeny introduction –

Readings: Ch 24, and Bioskills 13

October 19, 2020

Phylogenetics and the History of Life –

Readings: Ch 25

October 21, 2020 –

The Domains of Life and Introduction to Bacteria —

Abundant and Diverse – Bacteria – Archaea --

Readings: Ch 26

October 26, 2020

Bacteria and Archaea –

<p>Readings: Ch 26 October 28, 2020 – Eukaryotes and Protists – Readings: Ch 27</p>
<p>November 2, 2020 – Protists and Plants – Apicomplexans, Parabasalids and Others Readings: Ch 27, 28 November 4, 2020 Plants – Readings: Ch 28</p>
<p>November 9, 2020 Gymnosperms & Angiosperms — Plants on Land -- Flowers – The Beautiful Revolution Readings: Ch 28 November 11, 2020 EXAM II</p>
<p>November 16, 2020 Fungi and Animal Introduction – Readings: Ch 29, 30 November 18, 2020 Animals – Major Themes Readings: Ch 30</p>
<p>November 23, 2020 Animals: Diploblasts, Acoelomorphs and Protostomes Readings: Ch 30 and 31 November 30, 2020 Protostomes and Deuterostomes Readings: Ch 31 and 32</p>
<p>December 2, 2020 Deuterostomes — Readings: Ch 32</p>
<p>FRIDAY December 11 FINAL EXAM 330-530PM</p>

NOTE: Discussion sections begin September 1

*The syllabus is subject to change. Any changes will be announced in class and via OAKS if there are campus closures due to weather and any other campus-wide policy changes. Assignment due dates are listed above to be submitted on OAKS. Weekly schedule will also be on OAKS.

Important campus-wide dates:

- Back to the bricks learning currently commences on Monday Sept 14. Additional updates and policies will be announced.

- Storm Make up dates (mark your calendars): Sept 12, Sept 13, Sept 26, Sept 27, Oct 17, Oct 18. *Use of these dates is announced campus-wide.*
 - If these storm-dates are used for CofC learning time, in this course we will employ a-synchronous on-line interaction.
- Last day to Add/Drop: Sept 31
- Last day to W: Oct 28
- Last day of planned on campus activities for class: Nov 24
- Last day of classes: Dec 4

Course requirements & Course Points

In Class Exams:	200 Pts.
Final Exam (second half cumulative):	200 Pts.
Quizzes (on OAKS)	100 Pts.
Discussion activities, in class assignments	75 Pts.
Skill development assignments	75 Pts.
Discussion Project 1 Evolutionary Ecology	125 Pts.
Discussion Project 2 Ecology and Conservation	100 Pts.
Discussion Project 3 Biodiversity	75 Pts.
Discussion Presentations	50 Pts.
<u>Total points:</u> 1000 Pts	

Grading Policy: A: 93-100, A-: 90-92; B+: 87-89, B: 83-86, B-: 80-82, C+: 77-79, C: 73-76, C-; 70-72, D+: 67-69; D: 63-66, D-: 60-62, F: <59, other aspects of grading follow CofC standards.

Extra Credit

I will offer potential extra credit options. A *maximum* of 4 seminars would count as extra credit.

NOTE: These extra credits are a token to encourage general campus/civic involvement

To receive credit you must hand in a typed 5 sentence summary of the seminar that you participated in which also includes a description of what you learned from this seminar. In general, a seminar will be worth about 3 points of extra credit.

Extra credit for your first zoom office hour visit.

Alternative extra credit: Pick up plastic trash off the beach or park. Take a picture of you with your bag and upload onto OAKS or bring in the full bag to class. Include a summary of the impact of plastic trash on the ecology of the beach or park including connection to course content. (3 points)

See separate discussion syllabus for weekly activities and assignments.

CAMPUS WIDE Syllabi Statements

To complement the [Policy on Course Syllabi 7.6.10](#). Relevant policy sections in parentheses.

Mandatory Syllabus Content

Academic Integrity Statement (3.12):

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when suspected, are investigated. Each incident will be examined to determine the degree of deception involved.

Incidents where the instructor determines the student's actions are related more to misunderstanding and confusion will be handled by the instructor. The instructor designs an intervention or assigns a grade reduction to help prevent the student from repeating the error. The response is recorded on a form and signed both by the instructor and the student. It is forwarded to the Office of the Dean of Students and placed in the student's file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This status indicator will appear on the student's transcript for two years after which the student may petition for the XX to be expunged. The F is permanent.

Students can find the complete Honor Code and all related processes in the Student Handbook at: <http://deanofstudents.cofc.edu/honor-system/studenthandbook/>.”

Accommodations for Students with Disabilities (3.11; choose one):

1. Any student eligible for and needing accommodations because of a disability is requested to speak with the professor during the first two weeks of class or as soon as the student has been approved for services so that reasonable accommodations can be arranged. [Center for Disability Services/SNAP](#).
2. The College will make reasonable accommodations for persons with documented disabilities. Students should apply for services at the [Center for Disability Services/SNAP](#) located on the first floor of the Lightsey Center, Suite 104. Students approved for accommodations are responsible for notifying me as soon as possible and for contacting me one week before accommodation is needed.
3. This College abides by section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. If you have a documented disability that may have some impact on your work in this class and for which you may require accommodations, please see an administrator at the [Center of Disability Services/SNAP](#), 843.953.1431 or me so that such accommodation may be arranged.

OAKS (3.10, for all instructional modalities)

OAKS, including Gradebook, will be used for this course throughout the semester to provide the syllabus and class materials and grades for each assignment, which will be regularly posted.

Inclement Weather, Pandemic or Substantial Interruption of Instruction (3.8)

If in-person classes are suspended, faculty will announce to their students a detailed plan for a change in modality to ensure the continuity of learning. All students must have access to a computer equipped with a web camera, microphone, and Internet access. Resources are available to provide students with these essential tools.

Weather closure:

Over the last 6 years, every fall we have an altered syllabus due to campus closures due to weather.

If the College of Charleston closes and members of the community are evacuated due to inclement weather, students are responsible for taking course materials with them in order to continue with course assignments consistent with instructions provided by faculty. In cases of extended periods of institution-wide closure where students have relocated, instructors may articulate a plan that allows for supplemental academic engagement despite these circumstances. We will work together for safety and to ensure continued learning in our course. To achieve these aims, as power, internet and cellular service allow, I will stay in email communication.

Continuity of Learning (for hybrid classes with face-to-face meetings)

Due to social distancing requirements, this class will include a variety of online and technology enhanced components to reinforce continuity of learning for all enrolled students. Before the drop/add deadline, students should decide whether the course plan on the syllabus matches their own circumstances. [followed by instructor's detailed plan]

Recording of Classes (via ZOOM)

Class sessions may be recorded via both voice and video recording. By attending and remaining in this class, the student consents to being recorded. Recorded class sessions are for instructional use only and may not be shared with anyone who is not enrolled in the class

Mental & Physical Wellbeing:

At the college, we take every students' mental and physical wellbeing seriously. If you find yourself experiencing physical illnesses, please reach out to student health services (843.953.5520). And if you find yourself experiencing any mental health challenges (for example, anxiety, depression, stressful life events, sleep deprivation, and/or loneliness/homesickness) please consider contacting either the Counseling Center (professional counselors at <http://counseling.cofc.edu> or 843.953.5640 3rd Robert Scott Small Building) or the Students 4 Support (certified volunteers through texting "4support" to 839863, visit <http://counseling.cofc.edu/cct/index.php>, or meet with them in person 3rd Floor Stern Center).

These services are there for you to help you cope with difficulties you may be experiencing and to maintain optimal physical and mental health.

Food & Housing Resources:

Many CofC students report experiencing food and housing insecurity. If you are facing challenges in securing food (such as not being able to afford groceries or get sufficient food to eat every day) and housing (such as lacking a safe and stable place to live), please contact the Dean of Students for support (<http://studentaffairs.cofc.edu/about/salt.php>). Also, you can go to <http://studentaffairs.cofc.edu/student-food-housing-insecurity/index.php> to learn about food and housing assistance that is available to you. In addition, there are several resources on and off campus to help. You can visit the Cougar Pantry in the Stern Center (2nd floor), a student-run food pantry that provides dry-goods and hygiene products at no charge to any student in need. Please also consider reaching out to Professor Murren if you are comfortable in doing so.

Inclusion:

The College of Charleston offers many resources for LGBTQ+ students, faculty and staff along with their allies.

[Preferred Name and Pronoun Information](#)

[On Campus Gender Inclusive facilities](#)

[Campus Resources](#)

[College of Charleston Reporting Portals](#)

[National Resources for Faculty & Staff](#)

[GSEC Reports](#)

[Documenting LGBTQ Life in the Lowcountry](#) (CofC Addlestone Library Special Collections Project)

[College of Charleston Quality Enhancement Plan \(QEP\)](#)

[Articles about CofC and LGBTQ+ Issues](#)

“Religious Accommodation for Students” (4.6):

[\(Faculty/Administration Manual VIII.A.10\)](#)

The College of Charleston community is enriched by students of many faiths that have various religious observances, practices, and beliefs. We value student rights and freedoms, including the right of each student to adhere to individual systems of religion. The College prohibits discrimination against any student because of such student’s religious belief or any absence thereof.

The College acknowledges that religious practices differ from tradition to tradition and that the demands of religious observances in some traditions may cause conflicts with student schedules. In affirming this diversity, like many other colleges and universities, the College supports the concept of “reasonable accommodation for religious observance” in regard to class attendance, and the scheduling of examinations and other academic work requirements, unless the accommodation would create an undue hardship on the College. Faculty are required, as part of their responsibility to students and the College, to ascribe to this policy and to ensure its fair and full implementation.

The accommodation request imposes responsibilities and obligations on both the individual requesting the accommodation and the College. Faculty members are expected to reasonably accommodate individual religious practices. Examples of reasonable accommodations for student absences might include: rescheduling of an exam or giving a make-up exam for the student in question; altering the time of a student’s presentation; allowing extra-credit assignments to substitute for missed class work or arranging for an increased flexibility in assignment dates. Regardless of any accommodation that may be granted, students are responsible for satisfying all academic objectives, requirements and prerequisites as defined by the instructor and by the College.

2020 – 2021 Religious Holidays¹

Date	Holiday	Religion
September 18 2020	Rosh Hashanah ²	Jewish
September 28, 2020	Yom Kippur ²	Jewish
October 2 – October 9, 2020	Sukkot ²	Jewish
October 9, 2020	Shemini Atzeret ²	Jewish
October 19 - October 26, 2020	Navaratri	Hindu
October 19, 2020	Birth of Baha’u’llah	Baha’i
January 7, 2021	Christmas ³	Orthodox Christian
February 17, 2021	Ash Wednesday (Beginning of Lent)	Christian
February 25-26, 2021	Purim ²	Jewish
March 15, 2021	Great Lent Begins	Christian
March 20, 2021	Naw-Ruz	Baha’i
April 2, 2021	Good Friday	Christian
March 26 - April 3, 2021	Passover ²	Jewish
April 12-May 11, 2021	Ramadan	Muslim
April 30, 2021	Good Friday (Orthodox) ³	Orthodox Christian
April 20 and 28, 2021	Ridvan	Baha’i

¹ The previously included Islamic holidays of Eid al-Adha and Eid al-Fitr fall outside the regular academic year and are therefore not listed here. ² All Jewish holidays begin at sunset on the evening before the date given.

³ Orthodox Christian holidays begin at sunset on the evening before the date given.