**AST 389: Science Fiction
General Information**

**Spring 2024**

Tuesdays 7:00 - 9:50 PM
Physics P127

**Instructor**: [Prof. Frederick M. Walter](http://www.astro.sunysb.edu/fwalter/)
(ESS 459; 632-8232; frederick.walter *at* stonybrook.edu)
Office Hours: MWF 9-10AM or by appointment.

**Overview**:

The term "science fiction" is a misnomer in that it is generally not fiction about science. The genre is more appropriately titled "speculative fiction", since authors are free to speculate about what-might-have-beens, what-ifs, and what-might-be. When these speculations are carried out subject to the constraints of physical law, we have what is called hard Science Fiction (as opposed to fantasy). This course will examine some of these what-might-have-beens, what-ifs, and what-might-yet-bes subject to the constraints of physical law, as imagined by various authors.

We will us this genre of literature

* to teach aspects of science,
* to explore facets of reality that don't arise on Earth,
* to speculate about the nature of life under different conditions,
* to hypothesize alien or alternative cultures,
* to explore the ramifications of new technologies and understanding on human societies, and
* to peer into possible and plausible futures.

Hard science fiction permits one to perform *gedankenexperimente* on societies.

We will read eleven SF novels and a number of novellas and short stories. We will examine these texts through the lenses of both science and literature. Please note that all texts under our microscope are "hard sci-fi," so what we find could be possible...

**Prerequisites**: Students must have completed the HUM and SNW SBC requirements (or DEC A, B and one DEC E course).

**Requirements**:

* ACTIVE and INFORMED participation (10% of your grade). This class will consist mostly of discussion of the readings and other relevant materials, so it is important for you to have read and thought about the materials beforehand.
* Book reports (15% of your grade). I have assigned 11 novels. The novels include the contemporary works of fiction [listed below under "Readings"](https://www.astro.sunysb.edu/fwalter/AST389/general.html#readings) and Verne's "From the Earth to the Moon". This is a lot of reading (but you are supposed to be interested, no?). To prod you to do the readings, you are required to turn in book reports (1-2 typewritten pages in length) on 7 of the novels (of your choosing). *Reports on the short stories or novellas will not be accepted.* H.G. Wells' "The Time Machine" is a novella.
Do not merely summarize the story. What are the lessons the author is trying to convey? Why do you think yoiur instructor chose it for this course? What makes this good science fiction (or if you think it is not, why not?). Tell me something you cannot find on-line, *and that chat-GPT doesn't know either*.

Book reports may be e-mailed to the instructor, or may be handed in in class. *In no event will these reports be accepted after the start of the class when we discuss the book*.

* Three papers (each 25% of your grade):
**a.)** a literary **and** scientific critique of a relevant text or movie or TV series **not** discussed in class. The length should be no less than 3 pages, and no more than 5 pages (this is a guideline, not a requirement). This critique is due in class before Spring Break (March 11).
**b.)** a paper based on a topic I supply (suggested length 5-7 pages, so it may be usable for your upper division writing requirement). This paper is due on April 16.
**c.)** an original short story on a topic that fits into the hard sci-fi genre. The original short story is due at the end of the semester (Monday May 6). Graphic novels or videos, as well as words on paper, are acceptable. *Use your imagination, not AI.*
Check with your instructor if you are unsure about acceptability.

Your critique (paper a.) must be on

* + material that is approved by the instructor (we can't have you reading fantasy now, or critiquing "Lost in Space" or "Barbarella", can we?), or
	+ based on [material in this list of other texts](https://www.astro.sunysb.edu/fwalter/AST389/othertexts.html).

Video games are unacceptable.

The topic for paper b.) is to be chosen from one of the following:

* + **How good are SF authors as prognosticators?** Select at least one novel or two movies or two short stories (either from the reading list, the other [screened list](https://www.astro.sunysb.edu/fwalter/AST389/othertexts.html), or others, which should be cleared with the instructor) set in the present or near future. Discuss how the society and the technology that the author foresaw compares to the reality of our present day.
	+ **The End of the Earth**: Examining a minimum of two of our texts (novels or short stories), explore the psychological effect of knowing on some level that the world as known to the characters is going to end. Does it matter how, or how soon, the world will end? Make sure your two texts "come together" and are not just tagged on to each other.
	+ **"Comparative Alienology"**: What is the difference between a "good" alien and a "bad" alien? How do we differentiate? How do we know? And CAN we know? How possible/plausible is communication?
	+ **"Communication"**: How might one communicate meaningfully with an intelligent, non-terrestrial species. Do you need a common referent? What concepts might you have in common? How does one get beyond mathematics and facts, to communicate feelings, opinions, and desires?

For papers a. and b., you may use references if appropriate (no specific reference format required: this is not an English class).

Your instructor prefers to read papers on paper. If you want your papers marked up and handed back, you MUST deliver a paper copy to the instructor on or before the due date. However, all materials may be delivered electronically as .pdf (preferred), .doc/docx, or plain text files *before* the class meets.
The short story (paper c.), however, must be delivered in digital format. Unless you request otherwise, it will be uploaded to Brightspace so that your classmates can also enjoy your work.

Late papers will be accepted only at the discretion of the instructor, and with a reasonable explanation. One letter grade will be deducted from all late papers. Papers delivered electronically during class time (e.g., after 1900 EST/EDT on Tuesday) will be considered late, because you should be paying attention in class rather than finishing assignments.

**Exams**: There are no exams. Do the readings.

**Readings**: The required texts, which you must have access to, are

* Asimov, Isaac: *I, Robot*
* Bradbury, Ray: *The Martian Chronicles*
* Butler, Octavia E.: *Parable of the Talents*
* Cherryh, C.J.: *Foreigner*
* Haldeman, Joe: *Forever War*
* Herbert, Frank: *Dune*
* Kollin, D. & Kollin, E.: *The Unincorporated Man*
* Miller, Walter: *A Canticle for Liebowitz*
* Russell, Mary Doria: *The Sparrow*
* Verne, J.: *From the Earth to the Moon* (on-line - see the syllabus)
* Weir, Andy: *The Martian*

If you choose to purchase these texts, any edition or version is acceptable. All are available in paperback.

Other required readings are available on-line or will be available on Brightspace. See the [syllabus](https://www.astro.sunysb.edu/fwalter/AST389/syllabus.html).

**Brightspace**: Short stories that are not in the public domain are posted on Brightspace. Otherwise, your instructor will use Brightspace and other learning management tools as little as possible. The web pages you are reading are the documents of record.

**Contacting the Instructor**:
Your instructor welcomes e-mail, but is innundated with spam. And many of you use e-mail addresses that are not instantly recognizable, especially if they originate from yahoo.com or hotmail.com. Please make sure that the subject line of your e-mail contains one of the following phrases: *AST 389* or *Science Fiction*.

If you cannot reach the instructor, in an emergency you can e-mail CAS\_Dean@stonybrook.edu with "AST389" in the subject line.

Assigned papers may be mailed as attachments. I will send confirmations that I can read your file upon request (but maybe not immediately). PDF, postscript, and Word (.doc/docx or .rtf) documents are generally readable, but there are alien formats (such as xml) we simply cannot fathom. If you have a choice, pdf is preferable.

**Classroom Decorum**:
Students attending class are asked to exhibit common courtesy. See [Critical Incident Management.](https://www.astro.sunysb.edu/fwalter/AST389/general.html#seccim)

* If you arrive early, please take a seat near the center of the room. Otherwise late-coming students will be forced to crawl over you.
* Please do not arrive late. This is discourteous and disruptive. You may miss important announcements, and you may never figure out just what planet we're on today.
* Please do not leave early. This is discourteous and disruptive.
* Please do not carry on intimate conversations with your friends during class. We are all your friends, and we all want to share in the conversation.
* Please turn off cell phones and pagers during class. If you must use the phone, please leave the room.
* Students who are disruptive will be asked to leave.

Students are encouraged to ask questions at any time during the lectures. Lecture notes will not be available, although lecture synopses may be posted to the course website. You are responsible for taking notes.

**Attendance Policy**:
Students who know in advance that they will miss a class because of university-related activities (including athletics) or civic obligations (e.g., jury duty) should contact the instructor as soon as possible in advance of the date of absence.

Otherwise, one unexcused absence is allowed; each subsequent absence will lower your grade. An excused absence is documented immediately after it occurs -- advance notice of a necessary absence is also a good thing! Attendance will be taken.

If you will need to miss classes because of common exams on Tuesday evenings, you should consider taking another class.

An absence, excused or not, is not sufficient reason to be late with papers.

Requests for extra credit assignments will not be entertained.

**Syllabus**

**Meeting**: Tuesdays 7:00-9:50 PM **Room**: Physics P127

**Instructor**: F.M. Walter

Syllabus revised January 2024

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| --- | --- | --- |
| **Class** | **Date** | **Topic** |
| **1** | Jan 23 | [**Introduction to Science Fiction**](https://www.astro.sunysb.edu/fwalter/AST389/Bookclub.pdf) |
|  | **Lecture:** | [**The scope of science FICTION and the scope of SCIENCE fiction**](https://www.astro.sunysb.edu/fwalter/AST389/WhatIsSF.pptx.pdf) |
|  | **Reading:** | [***Kurt Vonnegut: On Writing Science Fiction***](https://www.astro.sunysb.edu/fwalter/AST389/vonnegut.txt) |
|  | **Video:** | [***The Day the Earth Stood Still***](https://www.astro.sunysb.edu/fwalter/AST389/Movies/The.Day.The.Earth.Stood.Still%5B1951%5D.mp4)**(1951)** |
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| **2** | Jan 30 | **Science (Fiction) and Society** |  |
|  | **Lecture:** | [**Science**](https://www.astro.sunysb.edu/fwalter/AST248/wis.pptx.pdf)**,**[**Pseudo-Science**](https://www.astro.sunysb.edu/fwalter/AST389/Pseudoscience.pptx.pdf)**, and Non-Science in Contemporary Society** |  |
|  | **Readings:** | **Asimov:**[***Nightfall***](https://www.astro.sunysb.edu/fwalter/AST389/TEXTS/Nightfall.htm) |  |
|  |  | **Haldeman: *The Forever War*** |  |
|  | **Supporting Documentation:** | [**Liquid breathing moves a step closer thanks to measurement study**](https://phys.org/news/2017-03-liquid-closer.html) |  |
|  |  | [**US Army trials exoskeletons for military use**](https://www.army-technology.com/features/us-army-exoskeletons/) |  |
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| **3** | Feb 6 | **The Long History of Science Fiction** |  |
|  | **Lecture:** | **Sci-Fi as an Echo of the Aspirations of an Age** |  |
|  | **Readings:** | **Cyrano de Bergerac:**[***The Other World***](https://www.astro.sunysb.edu/fwalter/AST389/cyrano.html) |  |
|  |  | **Verne:**[***From the Earth to the Moon***](https://www.astro.sunysb.edu/fwalter/AST389/TEXTS/moon10.txt) |  |
|  |  | **Campbell: *Twilight* \*** |  |
|  |  | **Asimov: *Pate de Fois Gras* \*** |  |
|  | **Other:** | [***The Great Moon Hoax of 1835***](http://hoaxes.org/text/display/the_great_moon_hoax_of_1835_text/) |  |
|  |  | [***Le Voyage dans la Lune***](https://www.astro.sunysb.edu/fwalter/AST389/A_Trip_to_the_Moon___Le_Voyage_dans_la_lune___1902.flv) |  |
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| **4** | Feb 13 | **Gadgets in Science Fiction. I: Space Travel** |  |
|  | **Lecture:** | [**Can't Get They'a from Hey'a - the Physics of Space Travel**](https://www.astro.sunysb.edu/fwalter/AST248/spacetravel.pptx.pdf) |  |
|  | **Readings:** | **Weir: *The Martian*** |  |
|  |  | **Godwin: *The Cold Equations* \*** |  |
|  |  | **Niven: *Neutron Star* \***[**Image of a neutron star**](https://www.astro.sunysb.edu/fwalter/AST389/nsProperMotion.jpg) |  |
|  | **Video Excerpt:** | **2001, A Space Odyssey** |  |
|  | **Bonus Reading:** | [**Brin: *An Ever-Reddening Glow***](https://www.astro.sunysb.edu/fwalter/AST389/TEXTS/Brin_ERG.pdf) |  |
|  | **Supporting Documentation:** | [**Is beaming down in Star Trek a death sentence?**](https://arstechnica.com/gaming/2017/09/is-beaming-down-in-star-trek-a-death-sentence/)***Ars Technica*, 9/23/17** |  |
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| **5** | Feb 20 | **Gadgets in Science Fiction. II: Time Travel** |  |
|  | **Lecture:** | [**Quantum Mechanics, Causality, Entropy, and Time**](https://www.astro.sunysb.edu/fwalter/AST389/SF_Time.pptx.pdf) |  |
|  | **Readings:** | **Wells:**[***The Time Machine***](https://www.astro.sunysb.edu/fwalter/AST389/TEXTS/timem10.txt) |  |
|  |  | **Andersen: *Flight Forever* \*** |  |
|  |  | **Bradbury:**[***A Sound of Thunder***](https://www.astro.sunysb.edu/fwalter/AST389/ASoundofThunder.pdf) |  |
|  |  | **Niven: *The Theory and Practice of Time Travel* \*** |  |
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| **6** | Feb 27 | **Fiction of the Apocalypse** |  |
|  | **Lecture:** | [**Lucifer Is Fallen**](https://www.astro.sunysb.edu/fwalter/AST389/radiation.pptx.pdf) |  |
|  | **Readings:** | **Miller: *A Canticle for Liebowitz*** |  |
|  |  | **Benet:**[***By the Waters of Babylon***](https://www.astro.sunysb.edu/fwalter/AST389/babylon1.html) |  |
|  |  | **Bradbury: *There Will Come Soft Rain* \*** |  |
|  | **Other:** | **T. Cahill: *How the Irish Saved Civilization (Anchor Books, 1995)*a non-fiction work documenting how monks may have preservedGreek and Roman learning during the Dark ages** |  |
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| **7** | Mar 5 | **Fiction of the Near Future - Biology and Economics** |  |
|  | **Lecture:** | [**Just Enough Genetics and Evolution**](https://www.astro.sunysb.edu/fwalter/AST389/evolution.pptx.pdf) |  |
|  | **Readings:** | **Kress: *Beggars in Spain* \*** |  |
|  |  | **Simak: *Desertion* \*** |  |
|  |  | **Gibson:**[***Johnny Mnemonic***](https://www.astro.sunysb.edu/fwalter/AST389/TEXTS/johnnymnemonic.txt) |  |
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|  |  | **Kollin & Kollin: *The Unincorporated Man*** |  |
|  |  | **Feinstein:**[***It's a Trap: Emperor Palpatine's Poison Pill***](https://www.astro.sunysb.edu/fwalter/AST389/DeathStar_1511.09054v1.pdf) |  |
|  | **Supporting Documentation** | [**About CRISPR**](https://www.sciencealert.com/crispr-gene-editing)[**A Use for CRISPR**](https://www.sciencealert.com/in-a-world-first-crispr-has-been-trialled-on-a-patient-to-cure-blindness) |  |
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| **8** | Mar 19 | **Fiction of the Distant Future** |  |
|  | **Lecture:** | [**Exoplanets.**](https://www.astro.sunysb.edu/fwalter/AST389/exoplanets.pptx.pdf)[**the Kepler Orrery**](https://www.astro.sunysb.edu/fwalter/AST248/Kepler%20Orrery%20IV.mp4) |  |
|  |  | [**The End of the Universe**](https://www.astro.sunysb.edu/fwalter/AST389/future.pdf) |  |
|  | **Readings:** | **Herbert: *Dune***[**Introduction**](https://www.astro.sunysb.edu/fwalter/AST389/Intro_Dune.pdf) |  |
|  |  | **Sheffield: *At the Eschaton* \***[**Introduction**](https://www.astro.sunysb.edu/fwalter/AST389/Intro_eschaton.pdf) |  |
|  | **Musical Interlude** | **Zager & Evans:**[**In the Year 2525**](https://www.astro.sunysb.edu/fwalter/AST389/InTheYear2525.mp3) |  |
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| **9** | Mar 26 | **Present-day Dystopias** |  |
|  | **Lecture:** | [**The Meaning of Exponential Growth**](https://www.astro.sunysb.edu/fwalter/AST389/expg.pptx.pdf) |  |
|  | **Readings:** | **Butler: *Parable of the Talents*** |  |
|  |  | **Bradbury:**[***The Last Night of the World***](https://www.astro.sunysb.edu/fwalter/AST389/bradbury_EotW.txt) |  |
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| **10** | Apr 2 | **Gadgets in Science Fiction. III: Aliens** |  |
|  | **Lecture:** | [**Alien Biology**](https://www.astro.sunysb.edu/fwalter/AST389/aliens.pptx.pdf)[**Asteroids**](https://www.astro.sunysb.edu/fwalter/AST389/asteroidspacecraft.pptx.pdf)[**Arecibo**](https://www.astro.sunysb.edu/fwalter/PIX/Arecibo/arecibo.html) |  |
|  | **Readings:** | **Russell: *The Sparrow*** |  |
|  |  | **Brin:**[***Lungfish***](https://www.astro.sunysb.edu/fwalter/AST389/lungfish1.txt) |  |
|  |  | **Shara & McDevitt:**[***Lighthouse***](https://www.astro.sunysb.edu/fwalter/AST389/TEXTS/LH11.pdf) |  |
|  |  | **Weinbaum:**[***A Martian Odyssey***](http://gutenberg.net.au/ebooks06/0601191h.html) |  |
|  |  | **Fraknoi:**[***The Unwelcome Reply***](https://www.sciphijournal.org/index.php/2019/12/20/the-unwelcome-reply/) |  |
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| **11** | Apr 9 | **Communicating with Aliens** |  |
|  | **Lecture:** | [**SETI**](https://www.astro.sunysb.edu/fwalter/AST389/seti.ppt.pdf) |  |
|  | **Readings:** | **Cherryh: *Foreigner*** |  |
|  |  | **Knight: *To Serve Man* \*** |  |
|  | **Other:** | [**Scientists say space aliens could hack our planet**](https://www.nbcnews.com/mach/science/should-we-fear-cyberattacks-space-aliens-ncna849941)**Source: [Hippke, M & Learned, J.G, 2018, arXiv:1802.02180](https://arxiv.org/pdf/1802.02180.pdf)**[**A Beacon in the Galaxy: Updated Arecibo Message for Potential FAST and SETI Projects**](https://www.astro.sunysb.edu/fwalter/AST248/SETI_2203.04288.pdf)**,Jiang, J.H. *et al.*, 2022, arXix:2203.04288 preprint** |  |
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| **12** | Apr 16 | **The End of the Earth** |  |
|  | **Lecture:** | [**Impacts on the Earth: Risks and Rewards**](https://www.astro.sunysb.edu/fwalter/AST389/impacts.pptx.pdf)[**Why Stars Explode**](https://www.astro.sunysb.edu/fwalter/AST389/explosions.pdf)**(and Planets Do Not)** |  |
|  | **Readings:** | **Niven: *Inconstant Moon* \*** |  |
|  |  | **Clarke: *The Star* \*** |  |
|  |  | **Clarke: *Rescue Party* \*** |  |
|  | **Optional Reading** | **Crichton:**[***The Andromeda Strain***](https://novel12.com/241361/the-andromeda-strain.htm) |  |
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| **13** | Apr 23 | **Futures that Never Were** |  |
|  | **Discussion:** | **Prospects for Artificial Intelligence**[**Robots**](https://www.astro.sunysb.edu/fwalter/AST389/Robots.pptx.pdf) |  |
|  | **Readings:** | **Asimov: *I, Robot*** |  |
|  |  | **Asimov:**[***The Last Question***](https://www.astro.sunysb.edu/fwalter/AST389/thelastq.htm) |  |
|  |  | [**Why the three laws of robotics do not work**](https://www.astro.sunysb.edu/fwalter/AST389/Why%20the%20three%20laws%20of%20robotics%20do%20not%20work.pdf) |  |
|  | **Suggested Reading** | **Gibson: *Neuromancer*** |  |
|  | **Optional Reading** | **Karel Capek:**[***R.U.R.***](http://preprints.readingroo.ms/RUR/rur.pdf) |  |
|  | **Other** | **Lehman et al.**[***The Surprising Creativity of Digital Evolution***](https://www.astro.sunysb.edu/fwalter/AST389/1803.03453v1.pdf)[**Non-technical summary in Popular Mechanics**](https://www.popularmechanics.com/technology/robots/a19445627/the-hilarious-and-terrifying-ways-algorithms-have-outsmarted-their-creators/) |  |
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| **14** | Apr 30 | **Science Fiction as Allegory** |  |
|  | **Discussion:** | [**That's a Wrap!**](https://www.astro.sunysb.edu/fwalter/AST389/wrapup.pptx.pdf) |  |
|  | **Readings:** | **Bradbury: *The Martian Chronicles*** |  |
|  |  | **Alternative chapters:**[***The Fire Balloons (November 2002)***](https://www.astro.sunysb.edu/fwalter/AST389/FireBalloons.pdf)[***The Wilderness (May 2003)***](https://www.astro.sunysb.edu/fwalter/AST389/Wilderness.txt) |  |
|  | **Video** | [***Dark Star***](https://www.astro.sunysb.edu/fwalter/AST389/Movies/DarkStar.mp4) |  |

Novels in red can be ordered through the bookstore, and are also available at booksellers such as Barnes & Noble, or at amazon.com. Short stories followed by an asterisk are not freely available on-line, but can be accessed on the [AST 389 Brightspace page](http://blackboard.stonybrook.edu/).

**University-Mandated Notices**

**Academic Integrity**:

Plagiarism is bad. Always give credit to all your sources.

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the [Academic Integrity website](http://www.stonybrook.edu/commcms/academic_integrity/index.html) at http://www.stonybrook.edu/commcms/academic\_integrity/index.html

Students suspected of plagiarizing their writing assignments, or of any other form of academic dishonesty, will be assigned an F grade for the course and will be reported to the Academic Judiciary.

Students who suspect others of cheating are encouraged to report them. Reports will be kept confidential. Dishonest students make things that much harder for the majority of students, who are honest.

SBU subscribes to a plagiarism-detection website, and it is really easy for instructors to use. Moreover, the time spent searching for lovely things to plagiarize is arguably longer than what it will take to craft a personal paper. Again, please don't!

Use of AI is rampant among the student body. AI, much like Wikipedia or Google Searches, can be a useful tool in obtaining information. But AI, while artificial, is hardly intelligent, and makes lots of mistakes. Check your sources. Do not rely on AI for creative works - it can only mimic others. If you do not think for yourself you are only cheating yourself.

**Critical Incident Management**:
Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of University Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.

**Americans with Disabilities Act/ Student Accessibility Support Center Statement:**
If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Student Accessibility Support Center, ECC (Educational Communications Center) Building, Room 128, (631) 632-6748. They will determine with you what accommodations, If any, are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Student Accessibility Support Center. For procedures and information go to [this website](http://www.stonybrook.edu/ehs/fire/disabilities) (http://www.stonybrook.edu/ehs/fire/disabilities).

**Student Support Services:**

* To access mental health services, call Counseling and Psychological Services at 631-632-6720; Counselors are available to speak with 24/7.
* For updated information on the Academic Success and Tutoring Center please check [www.stonybrook.edu/commcms/academic\_success](https://www.stonybrook.edu/commcms/academic_success/) for the most up-to-date information.
* For IT Support: Students can visit the Keep Learning website at <https://sites.google.com/stonybrook.edu/keeplearning> for information on the tools you need for alternative and online learning. Need help? Report technical issues at <https://it.stonybrook.edu/services/itsm> or call 631-632-2358.
* For information on Library services and resources please visit the [Continuity of Library Operations guide](https://guides.library.stonybrook.edu/continuity).

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