



# Florida State University Undergraduate Handbook for Meteorology

<http://www.eoas.fsu.edu>

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This document is for people interested in studying for a bachelor’s degree in meteorology at Florida State University. Unofficial and continuously evolving, this handbook describes our degree program in more detail than the official FSU *General Bulletin* (the “college catalog”) issued annually at <http://registrar.fsu.edu/bulletin/>. The program in meteorology is part of the Department of Earth, Ocean, and Atmospheric Science (EOAS), which also offers undergraduate degrees in environmental science, geology, and a joint degree in science teaching; see <http://www.eoas.fsu.edu/programs/undergraduate>.

This document contains many Internet links, so it is easier to read electronically using a computer connected to the Internet. You can download the latest version of this document from <http://www.eoas.fsu.edu/programs/undergraduate/meteorology>. Because websites evolve continuously, some of the Internet links in this document may not work. If you click on an inactive link in this document, try to find the current webpage using a Google search.

To arrange a visit to FSU’s Visitor Center, see <https://visit.fsu.edu>

To arrange a visit to the meteorology program, contact our undergraduate advisor (see below).

To reach any staff or faculty member in EOAS, see [www.eoas.fsu.edu/people](http://www.eoas.fsu.edu/people)

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Mailing address:	Parking locations when you visit us:
Ms. Victoria Morrow Dept of EOAS, FSU PO Box 3064520 Tallahassee, FL 32306-4520	The EOAS Bldg. is at the SW corner of the intersection of Tennessee St. and Woodward Ave. There is no legal parking for visitors on campus near the EOAS Bldg. Illegally parked cars often are ticketed and possibly even towed. The closest legal parking to the EOAS Bldg. is off campus on or near Woodward Ave north of Tennessee Street. Visitors also may park at the Visitor’s Center by the Stadium (\$1.50/hr, \$7.50 max); however, that is literally one mile south of the EOAS Building.

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# Overview of Florida State University and Tallahassee

Florida State University (FSU) is one of twelve public universities supported by the State of Florida and one of three universities granted “preeminent status” by the state. The present enrollment at Florida State University is approximately 44,000, with 33,000 undergraduate students and 11,000 graduate students. Many statistics about FSU are at <https://www.ir.fsu.edu/>

FSU is located in Tallahassee, the capital of Florida (population approximately 200,000). We are located in the Florida Panhandle at the extreme southern tip of the Appalachian Mountains. Tallahassee is approximately 40 miles from the Gulf Coast. The city contains many small hills and plenty of pine trees and oak trees with Spanish moss hanging downward. I think of it as a small city built in a forest. The economy of the city centers on state government and higher education with a minimum of industry and air pollution. Tallahassee also is home to Florida A & M University and Tallahassee Community College. The climate is semi-tropical during four summer months and mildly continental and pleasant during the remainder of the year.

## Meteorology at FSU

The FSU Meteorology Department was founded in 1948, making it one of the oldest meteorology programs in the nation. On Earth Day, 22 April 2010, the Departments of Geological Sciences, Oceanography, and Meteorology merged to form the Department of Earth, Ocean, and Atmospheric Science (EOAS). On 12 February 2020, the new EOAS Building was dedicated, bringing together the component groups into one state-of-the-art building.

FSU offers the most extensive undergraduate and graduate programs in meteorology of any university in the southeastern United States. Current enrollments in meteorology are approximately 130 undergraduate students and 45 graduate students. The faculty pursues research in diverse areas of dynamical, physical, and synoptic meteorology and climatology, including atmospheric chemistry.

Outside of class, meteorology students participate in local and national forecasting contests. They form intramural sport teams and often sit together at FSU football home games. The [North Florida chapter](#) of the American Meteorological Society ([AMS](#)) and National Weather Association ([NWA](#)) was selected by the national AMS organization as the top local chapter in the country in 2006, 2009, 2010, and 2014. In 2013, it was named chapter of the year by the NWA, only one year after affiliating with the NWA, and again in 2016. The student-run North Florida chapter sponsors activities of professional interest and various recreational events. We also have a student chapter of [Chi Epsilon Pi](#), the meteorology honor society, and a chapter of [Sigma Gamma Epsilon](#), the earth science honors society.

Adjacent to the EOAS Building is the James J. Love Building, which houses the Tallahassee Forecast Office of the National Weather Service. The National Weather Service usually works with 1-2 volunteer students each semester. The Love Bldg also houses the Departments of Mathematics and Computer Science. Some EOAS faculty are affiliated with FSU’s Center for Ocean-Atmosphere Prediction Studies ([COAPS](#)), and the Geophysical Fluid Dynamics Institute ([GFDI](#)). COAPS also is home to the State Climatologist of Florida and [Florida Climate Center](#).

The meteorology program maintains an atmospheric instrumentation laboratory to support education and research and a well-equipped broadcast studio for students interested in weathercasting. The TV studio is also the site for live weekday evening broadcasts of “FSU Weather” over FSU’s local Comcast cable television channel “4fsu” and <https://www.youtube.com/fsuweather> More information on weathercasting appears later in this handbook.

Employment opportunities for meteorologists include forecasting (National Weather Service, energy companies, airlines, etc.), television-online weathercasting, working in industry or for consulting firms (providing specialized forecasts, seasonal outlooks, or air pollution studies), water management, forecasting for the military, teaching science and math, and research (university, government, or industry). The job market for B.S. graduates presently is very competitive. Therefore, students should broaden their employment opportunities by augmenting their meteorology training with courses in other areas such as computer science, statistics, hydrology, actuarial mathematics, chemistry, communications, business, etc. There is room in the curriculum for these elective courses. Nearly all our graduates find satisfactory jobs within a few months after graduation. However, you should be flexible about the location of your first job, because, outside of television and teaching earth science, not every city has jobs for meteorologists. Some of our graduates choose to pursue a postgraduate degree either at FSU or at other universities around the country. In graduate school, strong students are hired to work as teaching assistants or research assistants, both of which cover the cost of tuition and provide a monthly stipend.

FSU meteorology undergraduates pursue a Bachelor of Science (B.S.) degree. The new, revised undergraduate meteorology curriculum that became effective with the Fall 2022 semester is described later in this document. Most meteorology courses are offered only once per year (either fall or spring). Therefore, students must arrange their programs carefully. ***Prospective meteorology majors who enter FSU either as freshmen or transfer students should be counseled by a departmental faculty or staff advisor from the beginning to avoid later problems with course prerequisites and corequisites.*** Students not currently enrolled at FSU but plan to transfer to FSU should study the material in this document closely. The preferred time to transfer to FSU is the fall of one's junior year. Transferring is easiest for students who earn an AA degree from a State of Florida college or university.

Freshmen entering the FSU meteorology program are urged to prepare for and to take all relevant placement and exemption examinations, particularly math ([ALEKS](#)) and [foreign language](#). Meteorology is a quantitative science requiring extensive preparation in mathematics and physics. **Students who do well in math typically do well in meteorology, and students who struggle with math typically struggle with meteorology.** Meteorology majors should complete most of their required calculus, chemistry, and physics courses during the first two years of college to complete the B.S. program in four years. It is important to take the *appropriate* courses in calculus and physical sciences because some courses in these areas are not acceptable for meteorology majors. For example, calculus courses should be those for math, physics, and/or engineering majors, not for business or biology majors. General physics courses must be calculus-based, not algebra-based, and must include labs. More about this later.

A freshman student who starts with Basic College Algebra (MAC 1105) is behind the normal schedule. However, it is possible to get back on schedule by attending the summer session following the freshman year, provided mathematics coursework is taken and passed each semester. If this is not done, the physics sequence cannot be started until the second semester of the sophomore year, and meteorology coursework also will be delayed. This could transform a four year degree program into five years.

## Admission, finances, housing, and other general information

You should explore your college options during your junior year of high school, because you need to apply to FSU early in the fall of your senior year. There is a good general overview of Florida State University at [https://en.wikipedia.org/wiki/Florida\\_state\\_university](https://en.wikipedia.org/wiki/Florida_state_university). You can find answers to many common questions about FSU at <https://www.ir.fsu.edu>. The FSU “college catalog,” called the *General Bulletin*, appears at <https://registrar.fsu.edu/bulletin>. Here are some other important Web sites.

**Admissions:** <https://admissions.fsu.edu>

**Applications by foreign students:** <https://admissions.fsu.edu/international>

**Residency:** State law determines whether you will pay tuition at the in-state or out-of-state rate. See:

<https://admissions.fsu.edu/residency/>

<https://www.flbog.edu/universities/admissions-transfers/residency-requirements/>

If you recently moved out of Florida, you may still qualify for the out-of-state rate. See:

<https://admissions.fsu.edu/residency/waiver>

Very strong freshmen from out of state can receive a partial or full remission of out-of-state tuition:

<https://admissions.fsu.edu/first-year/scholarships>

Also, students who complete the “First Year Abroad” program in good standing have tuition billed at the in-state rate for their remaining FSU credits; for details, see <https://www.international.fsu.edu/FYA.aspx>

**Cost of attending FSU:** <https://financialaid.fsu.edu/cost>

**Excess Credit Surcharge:** State law requires state universities in Florida to impose an “excess credit hour surcharge” if you exceed a certain number of credits before you graduate. For students entering meteorology, this threshold currently is 144 credits. For details, see [https://registrar.fsu.edu/records/excess\\_hours](https://registrar.fsu.edu/records/excess_hours). All undergraduate degree-seeking students are subject to this surcharge, including out-of-state students and students receiving financial aid. A student who has a double major and who exceeds the legally defined threshold also must pay the surcharge, but that surcharge is refunded after graduation. College credits earned via AP, IB, AICE, or dual enrollment are NOT included when counting credits toward the threshold that initiates the excess credit hour surcharge, but courses that you drop (after the 4-day drop/add period) or repeat DO count toward the 144-credit threshold.

**Financial aid:** <https://financialaid.fsu.edu>

**Scholarships:** All freshman applicants who are admitted to FSU are automatically considered for merit-based scholarships. Recipients are selected based on high school grades and test scores. Because scholarships are limited, students with strong academic records should apply to FSU as early as possible. No special scholarship application is required--only the regular application to FSU. Other scholarships at FSU are targeted at specific groups; see “FS4U” at <https://financialaid.fsu.edu/types-aid/scholarships>

For other scholarships, see:

Air Force ROTC <https://airforcerotc.fsu.edu>

American Meteorological Society (The application deadline is typically in early February.)

<https://www.ametsoc.org/index.cfm/ams/information-for/students/ams-scholarships-and-fellowships>

National Weather Association (The application deadlines are as early as 15 April.)

<https://nwafoundation.org/scholarships-grants>

**Honors Program:** <https://honors.fsu.edu>

**Housing:** <https://housing.fsu.edu>

Apply for housing as soon as possible after you are admitted. About three-quarters of freshmen live on campus. Special housing options include the honors dormitory (<https://honors.fsu.edu/university-honors/honors-housing>) and [Living-Learning Communities](#), such as Women In Math, Science, and Engineering ([WIMSE](#)). Most students choose to live off campus after the freshman year, but it is totally your choice.

**University Health Services:** <https://uhs.fsu.edu>

At the top of the home page, click “Admission Health Requirements” for information about required immunizations and health insurance.

**Transfer credit evaluation:** <https://admissions.fsu.edu/credit/evaluation.cfm>

**Campus safety:** <https://police.fsu.edu>

**Finding other information:** To get other information about FSU or information that you cannot reach because of a broken web link in this document, go to <http://www.google.com> and enter a search of the form: key terms site:fsu.edu (← There is no space between “site:” and “fsu.edu”) where you should replace “key terms” by the topic that you want to research. That command will return Web sites ending in “fsu.edu” that contain the key terms for which you are searching. For example, at google.com, you could search for:site:fsu.edu national awards

## Suggestions for students still in high school

Take as many “college prep” courses as you can in high school, particularly in math and science, including AP or IB (International Baccalaureate) courses. Pursue a foreign language as far as you can (3 or 4 years of high school courses), and use AP, CLEP, and/or FSU placement exams to exempt as much as you can of the [foreign language requirement](#) that all students in FSU’s College of Arts and Sciences must complete before graduation.

Some students enter FSU with 30 or more credits earned in high school through AP, dual enrollment, etc., and have completed much of their Liberal Studies and foreign language requirements. Such students can graduate in three years, with summer school being available to fill in any gaps. Some students entering with many college credits prefer to take four years to graduate, using the extra time to pursue a double major or simply giving themselves more time to grow. It is strictly your decision whether to attempt graduation in three years. If you are in this situation and are a Florida resident, see also the section below about Bright Futures scholarships.

## Suggestions for Florida students with Bright Futures scholarships

“Bright Futures” is a merit-based scholarship program open to Florida residents who apply during high school. Retention of a Bright Futures scholarship requires a certain grade point average (GPA). ***Almost all students find FSU more difficult than high school, and their grades at FSU are typically lower than in high school. You should expect this and schedule your time accordingly.*** We recommend that you attend all classes and adopt good study habits to help you achieve the required GPA. The Florida Legislature can change any aspect of “Bright Futures” (GPA, amount of support, rules for renewal, etc.) at any time. You are responsible for keeping track of the “Bright Futures” program and for meeting current standards. For more information, see: <https://www.floridastudentfinancialaidsg.org/SAPBFMAIN/SAPBFMAIN>

## Suggestions for students from out of state

Florida's out-of-state tuition is not much higher than the in-state tuition of some states. Nonetheless, everyone wants to save as much money as possible. Out-of-staters can do that at FSU in three ways.

- (1) Maximize credits earned by testing (AP, CLEP, etc.).
- (2) Very strong freshmen from out of state can receive a partial or full remission of out-of-state tuition: <https://admissions.fsu.edu/first-year/scholarships>
- (3) Pursue FSU's First Year Abroad (FYA) program: <https://international.fsu.edu/FYA.aspx>  
Classes at all FYA campuses are taught in English, except for foreign language classes. Upon completion of a minimum of 36 credit hours of international study with a GPA of 3.0 or better, FYA students who are in good judicial standing qualify for out-of-state tuition waivers, allowing FYA students to pay in-state tuition rates for the remainder of their first undergraduate degree at Florida State in Tallahassee. Contact FSU's International Programs office (<https://international.fsu.edu>) for more information. Be sure to specify that you will be pursuing a meteorology major, which restricts you to the center in the Republic of Panama, because it is the only center that teaches Calculus with Analytic Geometry required for the meteorology major. The program in the Republic of Panama also offers general chemistry and calculus-level general physics, and has the further benefit of being the cheapest international center.

## Suggestions for buying a personal computer

FSU requires that all students own either a desktop or laptop computer. Essentially any computer that is a couple years old or newer should be adequate. A hard disk or a laptop power supply or battery might die after 3 years or less, but the rest of a computer should last 6 years or more. A corrupted or failed disk is a disaster if your files are not backed up; so make sure that you back up your files daily. I have seen students cry when they lost a file or files that took weeks to create but had not been backed up. To backup your most important files, you can use a 8 GB or larger USB memory stick, an external hard disk, or "cloud" storage on the Internet.

For a meteorology student at FSU, it does not matter whether you have a Windows PC, Apple Macintosh, or Linux computer, and you can buy it anywhere. For a Windows PC, budget roughly \$1000 for a computer with a printer. You may spend less, or you may spend more. Macintosh computers are typically more expensive. Computers often go on sale, so watch the advertising flyers in Sunday newspapers, which are often posted at the vendors' websites ([Best Buy](#), [Staples](#), [Office Depot](#), [Walmart](#), etc.). [FSU has a site license with Microsoft that allows students to download multiple copies of Microsoft Office that remain usable as long as they are enrolled.](#)

FSU students receive free lifetime email accounts from FSU and are eligible to apply for a computer account within our department once they begin taking courses toward a meteorology major.

## Requirements for the B. S. degree in meteorology

Graduation requirements are a combination of rules imposed by the State of Florida, Florida State University, the FSU College of Arts and Sciences, and the Department of Earth, Ocean, and Atmospheric Science. A bachelor's degree in meteorology from FSU requires 120 semester hours, i.e., credits. The last 30 credits must be earned in residence at FSU, and at least 60 credits must be earned at an accredited four-year college or university.

Freshmen and sophomores officially are advised by the [Division of Undergraduate Studies](#); however, students wanting to major in meteorology should declare meteorology as their major as soon as possible, preferably as they enter FSU, so they can be advised by staff and faculty within meteorology.

Here are the state and university undergraduate degree requirements:

[https://registrar.fsu.edu/bulletin/undergraduate/information/undergraduate\\_degree](https://registrar.fsu.edu/bulletin/undergraduate/information/undergraduate_degree)

One of the State of Florida's undergraduate degree requirements is that "Students who have entered a university in the State of Florida, Division of Colleges and Universities, with fewer than sixty hours of credit in the fall of 1976 or any time thereafter are required to earn at least nine hours prior to graduation by attendance in one or more Summer terms at one of the State University System institutions." The summer school requirement of 9 credits is part of, not in addition to, the 120 credits required for graduation. You are exempt from the summer school requirement if you transfer to FSU with 60 credits or more. In case of financial hardship, a student can petition to have the summer school requirement waived. We do not teach meteorology courses for majors during the summer because of our modest enrollments, but meteorology students can use the summer term to take math, chemistry, physics, liberal studies, foreign language, and electives.

Here is a link to FSU's Academic Regulations and Procedures:

[https://registrar.fsu.edu/bulletin/undergraduate/information/academic\\_regulations](https://registrar.fsu.edu/bulletin/undergraduate/information/academic_regulations)

The *FSU General Bulletin* is FSU's "college catalog" and is the complete (and lengthy) list of all rules, course descriptions, etc. Current and earlier editions are online at: <https://registrar.fsu.edu/bulletin> You may graduate under any set of rules documented in the *FSU General Bulletin* that is in force while you are enrolled at FSU. That way, any course plan you make toward earning a degree is still valid even if new rules are enacted. If you are a transfer student from a Florida community college, you can apply to be governed by the rules that existed when you first entered community college.

Here is FSU's policy for transfer students:

<https://liberalstudies.fsu.edu/liberal-studies-curriculum/transfer-students>

Here is the College of Arts and Sciences student resource page:

<https://artsandsciences.fsu.edu/students>

"University and college graduation requirements" are listed under "Advising":

<https://artsandsciences.fsu.edu/students/advising>

## ***Credit by examination***

Up to 45 semester hours of credit can be awarded by taking AICE, AP, IB, or CLEP tests and achieving appropriate scores. For details, see: <https://admissions.fsu.edu/first-year/credit> Credit earned by examination is particularly attractive to out-of-state students because of the tuition they can save. Students sometimes enter with the equivalent of their freshmen year satisfied by tests, allowing them to graduate in 3 years if they choose. Occasionally, a student may even enter with an AA degree earned through dual enrollment while in high school, in which case it may be possible to graduate in as little as two years.

Some students who have earned AP credit for calculus or physics decline that credit so they can take the more rigorous course at FSU to make sure that they have a strong foundation. A score of 3 on AP calculus AB is definitely not strong enough to accept the credit. A score of 4 or 5 indicates mastery at a level where you can go on to take the next higher level calculus course. However, be aware that roughly half the students who take Calculus I, II, or III at FSU earn a D+ or lower and must repeat the course. ***You should not gamble with your math background; poor math skills will lead to poor meteorology grades. Work hard and steadily in whatever math course you take at FSU.***

Passing the AP physics exam will not let you skip any FSU physics courses because AP physics is taught using algebra, while we require calculus-level general physics. Although it is good to take AP physics and score well on the exam, you will still have to take PHY2048C and PHY 2049C.

## *Course requirements for B. S. degree in meteorology*

<b>Requirements for a Bachelor of Science (BS) degree in meteorology</b>	<b>Credits required</b>
Liberal studies (36 credits are required, but the mathematics and science requirements of 6 and 7 credits, respectively, are satisfied by our required mathematics, chemistry and physics courses listed below)	36–(6+7) = 23
Foreign language: three 4-credit courses (You may test out of one or more)	12
Oral competency in English: MET 3940 Weathercasting	1
Mathematics (multiple courses; see below)	21
Chemistry: CHM 1045C Gen Chemistry I with lab	3
Physics: PHY 2048C, PHY 2048L, PHY 2049C, PHY 2049L	10
Statistics: STA 3032	3
Meteorology (multiple courses; see below)	35
E-Series and Writing courses (may double-count with Liberal Studies)	6
Scholarship in Practice (may double-count with Liberal Studies)	6
Upper-division writing: MET 4501C Synoptic Meteorology II	3
Computer Competency: MET 3220C Meteorological Computations	3
<b>Total credits</b>	<b>120–124</b>

Each line in the table is discussed separately below. After that is information about electives.

### *Liberal Studies (General education)*

Details are at <http://liberalstudies.fsu.edu/>

All students must satisfy FSU’s liberal studies requirements, often called “general education” requirements at other schools, involving basic courses in English, math, science, history, social studies, etc. There are additional FSU graduation requirements, which include taking 3 hours of “W” (a state mandated writing course), two SIP (scholarship in practice) courses, 1 X (cross-cultural diversity) course, 1 Y (diversity in western experience) course, an oral communication competency course, a computer competency course, 1 upper division writing course, and 1 natural science lab. These can overlap with liberal studies requirement courses. The oral and computing competency requirements can be satisfied by courses within our department (MET 3940 Weathercasting and MET 3220C Meteorological Computations, respectively). A student who transfers to Florida State University from a Florida public community/junior college or senior institution will be deemed to have satisfied the University's liberal studies requirements if all general education requirements stipulated by the community/junior college or senior institution have been met and the student's transcript has been so marked. However, note that a Florida AA degree does not satisfy the Arts&Sciences language requirement nor some other FSU specific requirements. Consult your meteorology academic advisor for details ([vmorrow@fsu.edu](mailto:vmorrow@fsu.edu)) or the College of Arts & Sciences ([AS-Advising@fsu.edu](mailto:AS-Advising@fsu.edu))

### *Foreign language*

The College of Arts and Sciences, in which our department resides, requires that all undergraduates complete a 2000-level course in a modern or ancient foreign language or exhibit equivalent competency. For a student starting a language from scratch at FSU, that involves two 1000-level courses and one 2000-level course, with each course earning 4 credits. The foreign language requirement is **not** automatically satisfied by an AA degree from another Florida institution. Students who seek to build on their high school foreign language must take a free placement test from the FSU Modern Language Department as soon as they arrive on campus (how quickly we can forget a language if not used). The placement test is available for Spanish, French, or German to determine the

course level at which they should start or whether they already perform at a sufficient level. (The latter is rare but does happen.) Students who seek to build on other high school foreign languages should talk with an FSU faculty member in the Dept. of Modern Languages who teaches that language. Similarly, students who grew up speaking a language other than English can be evaluated to see whether they satisfy FSU's foreign language requirement. For details about FSU's foreign language placement evaluations, see <http://artsandsciences.fsu.edu/students/undergraduate/policies-and-procedures>.

## ***Oral competency in English***

FSU's requirement for oral competency in English can be satisfied by a speech course in high school with a grade of B or higher, by verified participation in debate at the high school or college level, or by an appropriate college-level speech course with a grade of C- or higher, such as MET 3940 Weathercasting (1 credit).

## ***Mathematics***

The following mathematics courses are required for a B.S. in meteorology:

Only if required by your ALEKS score: MAC 1114 Trigonometry (3 credits) and/or MAC 1140 Precalculus Algebra (3 credits) (MAC1114 and MAC1140 should be taken the same semester.)

Plus MAC 2311 Calculus with Analytic Geometry I (4 credits), MAC 2312 Calculus with Analytic Geometry II (4 credits), MAC 2313 Calculus with Analytic Geometry III (5 credits), and MAP 2302 Ordinary Differential Equations (3 credits) or MAP 3305 Engineering Mathematics I (3 credits).

All students must have at least one minor. Twelve credits of mathematics at the calculus level or higher constitute a minor in mathematics, provided all grades are C- or better. Since FSU meteorology majors are required to take more than twelve credits, they earn an automatic minor in mathematics.

When entering college, prospective meteorology majors should enroll in the highest level mathematics classes for which they qualify. To determine the appropriate course, you need to take the online ALEKS math placement assessment (\$25 fee). See:

<https://www.math.fsu.edu/Undergraduate/ALEKS/>

A student who has earned college credit with a C- or better in a college math course through high school dual enrollment or transfer credit may take the next math course in the sequence without taking ALEKS. This exception does not include students who have earned or plan to earn college credit through AP/IB/CLEP/AICE tests. Those students must still take ALEKS.

Although a score of 3 on the AP Calculus exam technically is a passing score, we strongly discourage you from accepting AP Calculus credit if you earned a 3 on the AP Calculus test. Even if you score 4 on the AP calculus test, you have only about a 70% chance of earning a C- or better in MAC 2312 Calculus II. However a person who scores 4 on the AP Calculus exam *and* who takes MAC 2311 Calculus I has a nearly 100% chance of earning a C- or better on MAC 2312. Students who score 5 on the AP calculus AB test are safe to register for MAC 2312 Calculus II. Regardless of the guidance above, if you have any doubts as to whether you are prepared to take the next higher level math course, do not take it. *It is far better to step back and re-take a course and make an easy 'A' than to be over your head and do poorly your first semester at FSU.*

Students who start at FSU as freshmen should complete MAC 2311 Calculus I by the end of their first year so they can take PHY 2048C General Physics A with lab (PHY 2048L) in the fall of their sophomore year and MET 3231 (Introduction to Thermodynamics and Dynamics) during their fall semester. If a student does not score high enough on the ALEKS exam to place into Calculus I, they can take MAC 1114 and/or MAC 1140 during their freshman fall semester, and then MAC 2311 in the spring term.

A meteorology student who starts with MAC 1105 Basic College Algebra is behind schedule but can catch up by taking MAC1105 in the fall, MAC1114 and MAC1140 in the spring, and MAC2311 in the summer. Realistically, though, students who have not had the equivalent of MAC1105 in high school typically struggle to earn a meteorology degree. **We strongly discourage you from majoring in meteorology if you struggle with math in high school or community college. Also, students who struggle with MET 3231 or MET 3101 (Climatology) should seriously consider whether they should stay in meteorology, because the 4000-level meteorology courses are considerably harder.** In such a case, a [BS in Physical Science](#) or Environmental Science may be a better option. **You should consult with Ms. Morrow or Dr. Chagnon for advice in these situations.**

### ***Chemistry, physics, and statistics***

The following chemistry, physics, and statistics courses are required for a meteorology degree.

CHM 1045C General Chemistry I with lab (4 credits).

PHY 2048C General Physics A with lab (5 credits) (Calculus I prerequisite) and PHY 2049C General Physics B with lab (5 credits) (Calculus II corequisite)

STA 3032 Probability and Statistics for Scientists and Engineers (3 credits) (Calculus II prerequisite).

Students may substitute STA 4321 Introduction to Mathematical Statistics for STA 3032.

### ***Scholarship in Practice, and Upper-Division Writing***

The upper division writing course can be satisfied by taking MET4501C (Synoptic Meteorology II), a required course.

A meteorology course to satisfy the Scholarship in Practice (SIP) requirement currently is being developed. Stay tuned with your academic advisor. In the mean time, courses outside of meteorology can be used to satisfy SIP.

### ***Required meteorology courses for B. S. degree***

MET 3231 Introduction to Thermodynamics and Dynamics (3 credits) Fall only,

MET 3101 Physical Climatology (3 credits) Spring only,

MET 3220C Meteorological Computations (3 credits) Spring only,

MET 4301 Atmospheric Dynamics I (4 credits) Fall only,

MET 4400C Meteorological Instruments (3 credits) Fall and Spring,

MET 4420 Atmospheric Thermodynamics (3 credits) Fall only,

MET 4500C Synoptic Lecture-Laboratory I (4 credits) Fall only

MET 4501C Synoptic Lecture-Laboratory II (4 credits) Spring only

We do not want students to have to pick a new major during their senior year because of GPA problems. To graduate, a grade average of at least 2.0 is required for technical coursework, i.e., for meteorology courses numbered 2000 and higher and for required courses in math, statistics, chemistry, and physics. Further, a grade of C or higher is required in each of MET 3231, MET 3101, and MET 3220C. (If students cannot earn C's in the lower-level courses, it is unreasonable to think they can finish their meteorology courses with a cumulative GPA of C, i.e., 2.0). Each of the remaining required meteorology courses along with the required technical courses outside of meteorology must be passed with a C- or higher. If a course is not passed with the appropriate C or C- grade, it must be retaken until passed with the necessary grade. Because meteorology courses are taught only once a year, retaking a class commonly delays graduation by a year.

A student who has received more than three unsatisfactory grades (U, F, D-, D, D+) in courses required for the major, excluding Terms 1-4 Common Program Prerequisite courses, taken after enrolling at FSU, will not be permitted to graduate with a degree in Meteorology. Exceptions to this policy or reinstatement requires a petition to the meteorology faculty.

## Area of Concentration

In addition to the required meteorology courses listed above, each student must select a track (an area of concentration) consisting of a **coherent set** of meteorology courses and other electives that satisfies their career objectives. We have defined seven tracks and specified the courses for each. The **minimum** number of credit hours for a track is 12 h, but students are encouraged to take additional hours if possible.

In consultation with Ms. Morrow, Dr. Chagnon, or a student's faculty advisor, each student must select their track **no later the fall semester of their junior year**. Earlier selection is recommended because it provides greater course flexibility. The selection must have the written approval of the Undergraduate Program Director (currently Dr. Chagnon). Changing an already chosen track can be made only by written permission of Dr. Chagnon.

### Approved Course Tracks

Many of the courses listed below are only offered once a year (Fall or Spring semesters). In addition, some courses are only offered every other year. Therefore, your schedule must be planned carefully with your advisor, keeping in mind that some flexibility may be required.

#### 1) Atmospheric Science Research/Graduate Preparatory Option

- MET 4302 Dynamic Meteorology II 4 h
- MET 4450 Radiative Transfer & Remote Sensing 3 h
- MAP 4341 Partial Differential Equations I 3 h
- Other MET or technical electives 3 h

Undergraduates intending to enter graduate school should consider a course in linear algebra and additional coursework in physical sciences such as Modern Physics (PHY 3101, 3 credits) and General Chemistry II (CHM 1046 and CHM 1046L, 3+1=4 credits). Related coursework in geosciences could include physical oceanography. Additional computer science and/or statistics courses also are useful.

#### 2) Operational Meteorology (Federal or private sector)

Select at least 12 h from the courses below.

- MET 4536 Mesometeorology 3 h
- MET 4535 Tropical Meteorology 3 h\*\*
- MET 4705 Operational Meteorology 2 h
- MET 3520r Current Weather Discussion 1 or 2 h\*
- MET 3940r Weathercasting 1 or 2 h\*
- MET 4114 Regional Hydroclimatology 3 h
- MET 4450 Radiative Transfer and Remote Sensing 3 h

\*These courses can be taken more than twice, but only two takes will count toward the track.

\*\*Careful advance planning will be needed to take Tropical Meteorology during the senior year since both MET 4501C and MET 4302 are **prerequisites**

#### 3) Environmental Meteorology

Select at least 12 h from the courses below.

- MET 4640 Atmospheric Chemistry 3 h
- MET 4705 Operational Meteorology 2 h
- GLY 3100C History of Earth Systems 4 h
- GLY 4751C Remote Sensing and GIS 3 h
- EES 3040 Intro. Environmental Engineering 3 h
- ENV 4053 Chemical Fate and Transport in the Environment 3 h
- OCE 4008 Principles of Oceanography 3 h
- OCC 4002 Intro. Chemical Oceanography 3 h
- OCC 4060 Environmental Science Modeling 3 h
- OCE 4017 Current Issues in Environmental Science 3 h
- MET 4114 Regional Hydroclimatology 3 h
- MET 4370 Boundary Layer Meteorology 3 h

#### 4) Meteorological Emergency Management

- Satisfy requirements for an Emergency Management Certificate  
See <http://em.fsu.edu/certificate-tracks.php> 12 h
- MET 4536 Mesometeorology 3 h
- MET 4535 Tropical Meteorology (suggested, not required) 3 h\*\*

5) *Broadcast Meteorology*

- MET 3940r Weathercasting 1-2 h Maximum
- MET 3520r Current Weather Discussion 1-2 h Maximum
- Plus the same courses as the Operational Meteorology Track

6) *Climate Science*

Select 12 h or more from the courses below

- MET 4640 Atmospheric Chemistry 3 h
- OCE 4008 Principles of Oceanography 3 h
- OCC 4060 Environmental Science Modeling 3 h
- MET 3103C Climate Change Science 3 h
- MET 4302 Atmospheric Dynamics II 4 h
- MET 4450 Atmospheric Radiation and Remote Sensing 3 h
- MET 4114 Regional Hydroclimatology 3 h
- GLY 3100C History of Earth Systems 4 h

7) *Create Your Own Track*

If none of the previously listed tracks meets your career goals, you may create your own series of courses to constitute your track. This can be done only after consultation with your advisor and/or the undergraduate program director. **All courses comprising the track must clearly work toward a specific career goal.** The list of courses comprising the track requires the written approval of the undergraduate program director. It is anticipated that this track seldom will be used.

### ***Minors that can accompany a meteorology major***

Everyone is required to have a minor or a second major. Our required math courses constitute an automatic minor, provided you earn at least a C– in each course. One additional course in physics beyond PHY2049C, typically PHY3101 Intermediate Modern Physics, constitutes a physics minor (giving a second minor), provided you earn at least a C– in each course. Other minors that increase one’s skills and employability include computer science, statistics, business, and communications (for those interested in TV weathercasting). Meteorology students sometimes choose double majors, the most common being mathematics, physics, computer science, and communications.

### **Typical meteorology schedule for students entering FSU as a freshman**

The following tables show recommended year-by-year course schedules. ***Substantial deviations from these programs are common.*** Many students exempt some of these courses. Most non-meteorology courses are available during summer. The “Academic Map” for meteorology at <https://www.academic-guide.fsu.edu> should also be used as a guide to enroll in classes by the proper benchmark semester.

Meteorology courses are offered only once each year during the semester listed below. Course sequences must be carefully planned. *Failure to complete a prerequisite or a required course in the proper semester can result in delaying graduation by a full year. Meteorology rigorously enforces prerequisites for all of its courses.*

A bachelor’s degree in meteorology requires 120 credits. To graduate in 4 years, this works out to 14-15 credits per term plus 9 credits of required summer school, discussed earlier. The 9 credits of summer school are not included below because they can fall anywhere during one’s 4 years, and some students exempt them. No meteorology courses for majors are taught during summer because our enrollments are too small, but most other required courses (math, liberal studies, etc.) are taught during summer. The summer term is particularly useful in situations like are listed below:

- If you need to start with MAC1105 Basic College Algebra in the fall of the freshman year, so that you would take trigonometry and precalculus algebra in the spring and calculus 1 in the summer; or

- If you need to repeat a math course because you did not earn a C– or higher the first time; or
- If you do not want to or cannot take 14-15 credits per term; or
- If you wish to study abroad, see <https://international.fsu.edu>

You can petition to have the summer requirement waived if it poses a financial hardship. If you are excused from summer school, you must average at least 15 credits per fall and spring term to graduate in four years. It is recommended that you avoid (or at least minimize) electives until you have completed requirements for liberal studies and foreign language.

**Course Sequencing--4 Years at FSU**  
*This assumes no AP or other incoming credits*

<b>Fall Semesters</b>	<b>Spring Semesters</b>
<b>Freshman Year</b>	
• MAC 1114 Trig 3	MAC 2311 Calculus I 4
• MAC 1140 PreCalc Algebra 3	CHM 1045C General Chem I + Lab 4
• * MET 1020 Intro. Atmos. Sci 3	Liberal Studies/Language 7
• Liberal Studies 6	
Total 15	Total 15
*Recommended but not required	
<b>Sophomore Year</b>	
• MAC 2312 Calculus II 4	MAC 2313 Calculus III 5
• MET 3231 Intro Thermo & Dyn 3	MET 3220C Met. Computations 3
• Liberal Studies/Language 3	PHY 2049C Elec & Mag + Lab 5
• PHY 2048C Mech. & Heat + Lab 5	Liberal Studies or Track Courses 3
Total 15	Total 16
<b>Junior Year</b>	
• MAP 2302 or 3305 ODE 3	MET 4400C Met. Instruments 3
• STA 3032 Statistics 3	MET 3101 Phys. Climatology 3
• MET 4420 Atmos. Thermo. 3	Liberal Studies or Track Courses 9
• Liberal Studies or Track Courses 6	
Total 15	Total 15
<b>Senior Year</b>	
• MET 4301 Atmos. Dynamics I 4	Track Electives 11
• MET 4500C Synoptic Met. I 4	MET 4501C Synoptic Met. II 4
• Track Electives 7	
Total 15	Total 15

## Transfer students

Many students spend their first two years at community colleges or other institutions and then transfer to FSU to complete a bachelor's degree in meteorology. It is not necessary to take any meteorology courses prior to transferring to FSU, since all required meteorology courses can be taken at FSU in two years. However, since we offer each meteorology course only once per year, it is necessary to enter FSU in the fall to finish in two years. FSU requires that you must earn at least 60 credits at a four-year college or university. That means that if you earn more than 60 credits at a community college, you still must take at least 60 credits at FSU or some other 4-year college or university.

Students attending Florida Public Colleges are urged to complete the Associate of Arts (AA) degree. Persons with an AA degree from a Florida Public College only need a 2.0 or higher GPA to transfer to FSU; all other transfer students need a 3.0 or higher GPA. Transfer students who have earned an AA degree from a Florida Public College will have their General Education requirements at FSU waived. Although these requirements are waived, that waiver does not extend to all courses outside of meteorology. If a student transfers without the foreign language proficiency completed, they will need to complete the requisite coursework while enrolled at FSU. Courses not included in the waiver are University-Wide Graduation requirements: one SIP/FE course, a diversity course, an oral communication competency course (can be satisfied by taking MET 3940r Weathercasting), a Natural Science Lab, Upper-Division writing, and one course in civic literacy. Some of the graduation requirements are covered by the meteorology degree requirements. Students should consult with the Academic Advisor to obtain clarity on all remaining credits to be satisfied after successfully transferring to FSU.

Students who have **not** earned an AA degree from a Florida Public College will have their transcripts evaluated on a course-by-course basis. In that case, you should take courses that are as close as possible to those in FSU's Liberal Studies list.

### Other Considerations:

- 1) Try to complete the FSU Arts and Sciences foreign language requirement as part of your AA degree. Or, get as far as you can toward completing the 2000-level foreign language course before transferring to FSU.
- 2) In your first term in community college, you should take the highest-level mathematics course for which you qualify in the sequence: either MAC1105 Basic College Algebra, MAC1114 Trigonometry & MAC1140 Precalculus Algebra (MAC1114 and MAC1140 should be taken the same semester), MAC2311 Calculus I, MAC2312 Calculus II, MAC2313 Calculus III. Take at least one mathematics course each term before you transfer to FSU you. *The math courses at community colleges generally are easier than those at FSU.* The math courses you take should be those for physics, engineering, and physical science majors, **not** those targeted toward biology or business majors.
- 3) Our program requires calculus-level general physics with labs as appropriate for a physics major, so be sure to take that kind of physics sequence at your community college. Such physics is a two-semester or three-quarter sequence covering mechanics, thermodynamics, sound, optics, electricity, and magnetism. The courses include lecture and lab and *must* have a pre- or co-requisite of calculus I. Colleges often offer two types of physics, one being trigonometry or algebra based and the other being calculus-based. Trigonometry or algebra-based physics will **not** satisfy the requirements for meteorology majors.
- 4) Our required statistics course, STA 3032 Probability and Statistics for Scientists and Engineers (3 credits), has a prerequisite of calculus II. Therefore, if you want to satisfy our statistics requirement through transfer credit, you must take a 3-credit probability-statistics course that has a calculus II prerequisite. A non- calculus statistics course may provide useful background before you take our required probability-statistics course, but it will not substitute for STA 3032. Students rarely satisfy our statistics requirement before transferring.

## Typical schedule for a transfer student with an AA degree

This schedule assumes that you have satisfied all of FSU's liberal studies (i.e., general education) requirements and that you have completed the equivalent of MAC2311, MAC2312, CHM1045C, PHY2048C, and PHY2049C. We also assume that you have at most one foreign language course remaining, but ideally, you will have finished FSU's foreign language requirement before you transfer to FSU. Lastly, we assume that you transfer 60 or more credits to FSU; that way, you are exempt from the summer school requirement; so no summer term is shown below, although it is an option for all students. Meteorology courses are taught only one semester per year, except for MET3520 Current Weather Discussion and MET3940 Weathercasting, which are taught each fall and spring. MET3940 is also taught most summers. **If all of the above are not met prior to arriving at FSU, there is the distinct possibility that graduation will be delayed a year.**

	Fall		Spring	
<b>Junior Year</b>				
MAP 2313	Calc III (or higher)	3-5	MAP 2302 or 3305 ODE	3
STA 3032	Statistics	3	MET 3220C Met. Computations	3
MET 3231	Introduction to ...	3	MET 3101 Phys. Climatology	3
Electives* <sup>‡</sup>		4	Electives <sup>‡</sup>	6
	Total	15	Total	15
<b>Senior Year</b>				
MET 4301	Atmos. Dynamics I	4	Electives <sup>‡</sup>	8
MET 4500C	Synoptic Met. I	4	MET 4400C Met Instruments	3
MET 4420	Atmos. Thermo...	3	MET 4501C Synoptic Met II	4
Electives <sup>‡</sup>		4		
	Total	15	Total	15

\*The choice of Met electives is extremely limited this semester because MET 3231 is a prerequisite for most meteorology electives

<sup>‡</sup> The electives must consist of at least 12 credits for your area of concentration (your track). The remaining elective hours can be used to satisfy any of the assumptions listed above that are not met.

## Undergraduate research and preparing for graduate school

If you are considering graduate school, you will benefit greatly from research experience while still an undergraduate. Almost all research projects require that you have completed at least MET3231 and that you know some computer programming and basic statistics. You can get research experience in several ways. You can apply for a summer "research experience for undergraduates" (REU) or internship sponsored by a federal agency. REUs take place at universities and government labs around the country and are quite competitive.

To see all NSF REUs, see: <https://www.nsf.gov/crssprgm/reu>

For NSF REUs specific to meteorology, see: [https://www.nsf.gov/crssprgm/reu/list\\_result.cfm?unitid=10020](https://www.nsf.gov/crssprgm/reu/list_result.cfm?unitid=10020)

NASA offers summer internships: <https://intern.nasa.gov>

Finally, you can volunteer to work with an FSU professor. This work can be structured into an Honors in the Major (HITM) thesis if you qualify (see <https://honors.fsu.edu/honors-major>). The HITM requirements are patterned after those for a graduate degree. It is great learning experience for anyone considering graduate school.

Any undergraduate can submit a research report to the American Meteorological Society's Father Macelwane undergraduate research competition.

More than one programming language presently is used in meteorology. Python is the current frontrunner for small jobs. Large, computationally intensive programs are written in a compiled language like Fortran, C, or

C++. To learn programming, you can download one or more free compilers and use one or more online primers. To do this, search the Web for: download free Python (or Fortran 90, C, C++, etc.) Windows (or Mac or Linux). The most popular Python distribution is <https://www.anaconda.com/products/individual>. The most common free Fortran 90 compiler is gfortran. A desktop or laptop computer running Linux is a nice platform to learn programming.

## **Students interested in weathercasting**

Weathercasting refers to the presentation of weather information on television, radio, and in written form such as Web blogs, Facebook, Twitter, etc. Students interested in weathercasting take the same required meteorology courses as do other meteorology majors, and their area of concentration (track) will be Broadcast Meteorology. In addition, they participate in our cable TV operations, which are seen in surrounding counties on Comcast cable channel 4 and also are simultaneously streamed on the Internet at <https://www.youtube.com/fsuweather>, which includes recordings of past shows. The show airs live at 6:00–6:30 PM Eastern Time (6:00–6:15 PM Eastern Time during the summer term) from the second week of each term through the last week of each term with days off when the university does not have classes.

It takes time to develop as a weathercaster; so, if you are interested, it is best to get involved in our weathercasting activities as early as possible, preferably during your freshman year. If you are an incoming freshman interested in weathercasting, you should take MET1020 (3 credits) your first term to qualify to take MET3940 Weathercasting the following term. Even before you take MET3940, you can help with various tasks behind the camera.

It is also good for weathercasters to take as many communications courses as they can before graduation. Some meteorology students minor in communications or get a double major in meteorology and communications. An internship at a commercial TV station for one or more semesters is highly recommended for people interested in weathercasting. Almost all TV stations require that interns sign up for internship credit through their universities. Unless there is some other consideration, sign up for only 1 credit for each internship experience, no matter how many hours you work at that internship. There is no reason to pay FSU any more than the absolute minimum when the activity is actually between you and a television station.

Finally, a TV meteorologist is usually regarded as the station scientist who handles almost all science-related stories. For that reason, it is good to use some of your elective hours to take courses in basic oceanography, geology, and/or astronomy.

## **Students who are not quite done after 4 years**

Occasionally, meteorology students are done with all of their technical coursework at the end of four years but still need one or two more non-technical courses. FSU allows up to 6 of your last 30 credits to be taken at some other college or university with pre-approval from the Office of the Dean of Arts and Sciences. In that case, you may choose to start working after four years and take your last few credits at another school in the city where you are working. You may even be able to find an appropriate online course from FSU to avoid this problem entirely. It is very unlikely, though, that you will be able to find a required meteorology course in another city, and FSU will NOT allow more than 6 of the final credits to be taken elsewhere.

## **Students interested in meteorology as a second undergraduate degree**

If you already have a bachelor's degree, you can earn a second bachelor's degree in meteorology at FSU by

completing the technical courses required for our meteorology program, plus a minor (usually mathematics). You will also need to complete the foreign language requirement, if not taken during your first degree. The time required to earn a second degree will vary, but you can do it in two years if you have finished the equivalent of our requirements for chemistry, calculus, and calculus-level general physics with labs before entering FSU. The list of required classes would be similar to those for a transfer student, and you should apply as a transfer student. Like a regular transfer student, you will have to document your previous college experience in your application.

If:

- You are thinking about a second undergraduate degree in meteorology,
- You do not live in the Tallahassee area, and
- You have not completed general chemistry with lab, three semesters of calculus, two semesters of calculus-level general physics with lab, and the level of foreign language that FSU's College of Arts and Sciences requires,

then you are advised to complete all those courses at a local college or university before you pull up stakes and move to Tallahassee to enter FSU. Taking those courses at a local school will be less disruptive to your life, is often cheaper, and lets you see whether you can handle the level of technical courses that are part of a meteorology degree. After you have finished those courses, your schedule at FSU will be like that of a transfer student. The sample schedule for transfer students in this document shows Calculus III and the last foreign language course during the first semester at FSU, but it is generally preferable to complete these sequences at the same school, because the place where the second foreign language course ends and the third begins at another school may not be the same as where FSU does it. While schools have more uniformity in what is covered in Calculus II and Calculus III, FSU may use a different textbook, etc.

Students who have earned a bachelor's degree in communications sometimes earn a second bachelor's degree in meteorology if they want to be technically qualified as meteorologists for TV weathercasting. Occasionally they may ask about entering our graduate program instead of working for a second undergraduate degree; however, they usually lack the math and physics backgrounds that would qualify them for graduate study. Also, they can finish a second bachelor's degree faster, cheaper, and more easily than they can earn a master's degree, and a master's degree counts for little more than a bachelor's degree at most television stations.

## Minor in meteorology

A minor in meteorology consists of a minimum of 12 credit hours, not counting MAC 2311 Calculus 1 with Analytic Geometry (4 credits) and PHY 2048C General Physics A with lab (5 credits), which are required as pre- and co-requisites for MET3231. If you begin as a meteorology major but change to physical science, environmental science, or something else, we encourage you to see if you have already satisfied a minor in meteorology. If not, you can see how many additional courses you need.

A minor in meteorology usually begins with these 4 courses: MET 1020 Intro to Atmos. Science (3 credits), MET 1010L Intro to the Atmosphere lab (1 credit), MET 3231 (3 credits), and MET 3101 Physical Climatology (3 credits).

Students may then select one of two options to complete the minor, by taking *either*:

- *Option 1*: 3 credits of a MET course at the 3000- or 4000-level *or*
- *Option 2*: 2 credits of any combination of 3000-level meteorology courses (i.e., MET 3520 and/or

MET3940) plus OCE 1001 Elementary Oceanography (3 credits).

For option 1, the most straightforward approach is to complete one semester each of either MET 3520 Current Weather Discussion (1 credit) or MET 3940 Weathercasting (1 credit). MET 3220C Meteorological Computations (3 credits) could be chosen, but it has other mathematics and physics co- and pre-requisites. This is the route often taken by students who, after partial completion of a meteorology major, change to a different major.

For option 2, MET 3520 Current Weather Discussion (1 credit) and MET 3940 Weathercasting (1 credit) are repeatable courses, so a student may take both courses or one of these courses twice. OCE 1001 Elementary Oceanography (3 credits) then completes the minor.

## Related degree programs

### ***All Undergraduate Degrees Offered by our Department (EOAS):***

<https://www.eoas.fsu.edu/undergrad-degrees>

### ***FSU Teach: Geosciences*** <https://fsu-teach.fsu.edu>

“FSU Teach” is designed for people who want to become pre-college science teachers. Students double major in a science as well as in education. In connection with FSU Teach, our department offers a geosciences degree program that prepares people to become middle school Earth Science teachers.

### ***Physical Science*** <https://physics.fsu.edu/undergraduates/majors-minors-and-advising>

## Career Information

Meteorology majors find employment in local, state, federal agencies (including the National Weather Service), private corporations, schools (as science teachers), and an array of other areas as applied meteorologists. Because of variations in degree requirements around the country, the federal government’s definition of a meteorologist (GS–1340, see <https://www.opm.gov/qualifications/standards/IORs/gs1300/1340.htm>) is in terms of specific courses rather than as a meteorology degree. The required courses for the B.S. in meteorology satisfies these requirements.

### **Courses Required for all Meteorology Majors, Regardless of Track, Will Satisfy the Federal Requirements for Meteorologists**

- a. Six semester hours of atmospheric dynamics and thermodynamics;  
MET 3231 Intro. to Atmos. Thermodynamics and Dynamics (3 h)  
MET 4301 Atmospheric Dynamics I (4 h)
- b. Six semester hours of analysis and prediction of weather systems  
MET 4500C Synoptic lecture/lab I (4 h)  
MET 4501C Synoptic lecture/lab II (4 h)
- c. Three semester hours of physical meteorology;  
MET4420 Atmospheric Thermodynamics and Cloud Physics (3 h)
- d. Two semester hours of remote sensing and/or instrumentation.  
MET4450 Radiative Transfer and Remote Sensing (3 h) or  
MET4400C Meteorological instrumentation and observations (3 h)
- e. Six semester hours of physics, with at least one with a lab  
PHY2048C General physics A with lab (5 h)  
PHY2049C General physics B with lab (5 h)
- f. Three semester hours of ordinary differential equations.  
MAP2302 ODE (3 h) or MAP 3305 E Math I (3 h)

Research positions typically require a master’s degree or Ph.D.

**The job market for B.S. meteorology graduates presently is very tight. You should take extra courses, participate in volunteer programs, REUs, etc. to make your credentials stand out from those of others. Do not rely solely on what is provided in the classroom.**

Below is a representative listing of job titles and employers. Faculty members who teach meteorology are knowledgeable about internship and job opportunities in the field. FSU’s Career Center (850-644-6431, <https://career.fsu.edu>) offers general information about career planning, preparing a resume and cover letter,

interviewing, etc.

***Representative Job Titles:***

Weather Forecaster  
Synoptic, Dynamic, or Physical Meteorologist  
Climatologist  
Emergency Management Meteorologist Air  
Pollution Meteorologist  
Broadcast Meteorologist Industrial  
Meteorologist Science/Math Teacher Scientific  
Programmer  
Environmental Scientist, Geoscientist Physical  
Scientist

***Representative Employers:***

Federal government: National Weather Service,  
NASA, EPA, USFS, FEMA  
Military: Air Force, Army, Navy  
State agencies: Environmental/Air, Forestry,  
Emergency Management, Water Management  
Districts, etc.

Television stations

Industrial and engineering firms Airlines

Insurance and energy companies

School districts (hiring science teachers)

Colleges and universities (primarily after M.S.  
or Ph.D.)

Research organizations such as:

National Aeronautics and Space Administration  
(NASA)

National Oceanic & Atmospheric  
Administration (NOAA), including:

- Hurricane Research Division (HRD) in Miami
- National Hurricane Center (NHC) in Miami
- National Severe Storms Laboratory (NSSL) and  
Storm Prediction Center (SPC) in Norman,  
Oklahoma
- National Centers for Environmental Prediction  
(Washington DC area)
- National Climatic Data Center in Asheville,  
North Carolina

## Important Rules and Dates on which They Were Enacted

Fall 2000	<b>C or better must be earned in MET2700 as a prerequisite for MET3300.</b>
Fall 2002	<b>All required 2000- and 3000- level meteorology courses must be completed with a grade of "C" (2.0) or better to continue to the 4000-level courses.</b> The reason for this is that meteorology students must earn a 2.00 or higher GPA in required technical coursework to graduate. The 4000-level courses are harder than the 2000- and 3000-level courses, so if students cannot earn at least a C in each of the lower-level courses, it is unrealistic to believe that they can earn even higher grades in the 4000-level courses, which would be necessary to raise their technical GPA to the 2.00 level.
Fall 2003	<b>One undergraduate program rather than two:</b> Up to this semester, students chose either the applied option, requiring one of the second semester 4000-level courses and a choice of electives, or the graduate preparatory option, requiring both semesters of the 4000-level courses in dynamics (MET4301, 4302), atmospheric physics (MET4420, 4450), and synoptics (MET4500C, 4501C). The new degree requirements dropped the two options and mandated that everyone take both MET4501C and MET4302 (dropping the PDE prerequisite but recommending it for those wishing to attend graduate school). MET4450 Atmospheric Physics 2 became an elective, particularly recommended for those interested in graduate school.
Fall 2003	<b>Five D/F rule:</b> A student who has earned more than five (5) grades of D+ or lower in required technical courses (chemistry, mathematics, physics, statistics, and/or meteorology) will not be allowed to remain in the meteorology major.
Fall 2005	<b>PHY3101 Intermediate Modern Physics dropped as a corequisite for MET4450,</b> changed to a recommended course.
Spring 2007	<b>MET4450 Atmospheric Physics II</b> now includes remote sensing to satisfy the NWS remote sensing requirement.
Fall 2007	<b>MET4302 changed from 3 to 4 credits</b> to cover the mathematical material that most students were not getting after the PDE prerequisite was dropped in fall 2003.
Fall 2008	<b>MET4450 added to degree requirements.</b>
Fall 2008	<b>Minimum grade of C/C- minus required in all required technical courses:</b> In all required technical courses (chemistry, mathematics, physics, statistics, and/or meteorology), a grade of C- or better must be earned. In all required 2000 and 3000-level meteorology courses (MET 2101, 2507C, 2700, 3300), students must earn a C or better, which continues the rule that has been in place since approximately fall 1999.
Fall 2009	<b>Required statistics course:</b> STA 3032 Applied Statistics for Engineers and Scientists is required. STA 4321 is allowed as a substitute. (STA 4321 is required for students who have a double major in applied mathematics.)
Fall 2011, applies to all students who entered in fall 2008 or later	Clarification that grades of C- or better must be earned in any required 4000-level meteorology courses (MET4301, 4420, 4500C) before going on to a course that has one of those courses as a prerequisite (MET 4302, 4450, 4501C). This was the intent of the rule enacted in fall 2008.
Summer 2017	A meteorology major is allowed at most 3 grades of D+ or lower in required technical courses (meteorology, math, chemistry, physics, and statistics). If that number is exceeded, the student must change majors. Exception to this policy or reinstatement requires a petition to the meteorology faculty.
Fall 2022	New undergraduate curriculum becomes effective