

FSU-Teach Student Handbook

Revised 12/2013

Table of Contents

Program Description	1
FSU-Teach Directory	3
Suggested Course Sequence	4
Advising Checklist.....	5
Dress Code	6
Applying for Internships	7
Student Financial Support.....	10
Noyce Scholarship	11
Creating a Candidate Portfolio.....	14
Creating a Chalk & Wire Account.....	16
Chalk & Wire Checklist.....	17
Provisional Admission Application	18
Video Camera Instructions	20
Florida Teacher Certification Exams	21
Application to Teacher Preparation Programs.....	22
Student Teaching Application Forms	23
Appendices.....	24
FSU-Teach Biology Guide and Map.....	25
FSU-Teach Chemical Science Guide and Map	32
FSU-Teach Geosciences Guide and Map.....	39
FSU-Teach Mathematics Guide and Map	46

FSU-Teach Physical Science Guide and Map.....	53
SMT 1043, Step 1 Course Description.....	60
SMT 1053, Step 2 Course Description.....	62
SMT 3100, Knowing & Learning Course Description	64
MAT 3930, Functions & Modeling Course Description.....	66
SMT 4301, Classroom Interactions Course Description.....	67
SMT 4664, Project-Based Instruction Course Description	70
HIS 3505, Perspectives Course Description.....	72
ISC 3523C, Research Methods Course Description	74
SMT 4945, Apprentice Teaching Course Description	76

FSU-Teach Program Summary

FSU-Teach

FSU-Teach is a collaborative effort of the Colleges of Arts and Sciences and Education at Florida State University funded by those colleges as well as through National Mathematics and Science Initiative and Helios foundation. The FSU Program is modeled after the highly successful UTeach program at the University of Texas, Austin (<http://www.uteach.utexas.edu/>) – a program that has dramatically increased the number of secondary science and math teaching graduates primarily by attracting science and math majors into the teaching profession.

FSU-Teach works to meet the need for qualified and skilled teaching professionals in the secondary classroom by actively recruiting and preparing excellent students to become reform-minded science and mathematics teachers, then supporting these teachers after graduation to facilitate retention. FSU-Teach seeks to contribute to the research base on preparing and retaining math and science teachers.

FSU-Teach includes the aggressive recruitment of science and math majors largely via an array of student benefits, including paid tuition for the first two courses; paid work opportunities that provide experience in education, research, and/or community outreach; and a community structure for their university experience.

FSU-Teach students will complete courses that build the content and pedagogical preparation necessary to begin the life-long learning process that defines a successful teacher through a double major (one in the content disciplines and one in education).

FSU-Teach coursework begins with intensive early field experiences via Step 1 and Step 2 courses. In these courses students use research based math and science curricula to teach elementary (Step 1) and middle school (Step 2) students. The emphasis of these courses is for FSU-Teach students to experience teaching using high quality curricula and for the elementary and middle school students to have an opportunity to further develop their math and science content knowledge. These field experiences begin early in the students' coursework.

Additional FSU-Teach education coursework beyond the Step courses is streamlined, including 3 methods courses (each with a field component) followed by the apprentice teaching experience (internship).

FSU-Teach has streamlined academic requirements, working with each of the content and pedagogy disciplines to design an FSU-Teach track to enable students to graduate with a double major within four years.

FSU-Teach has at its core a close mentoring of students, through the dedicated Master teachers that help them work in the schools, through mentor teachers in the schools, and through university faculty committed to excellence in science and math teacher preparation.

FSU-Teach mentor relationships will extend beyond graduation through an induction program with the goal of supporting the FSU-Teach graduates during their first year of teaching.

FSU-Teach will seek to build an endowment to provide financial support to students and graduates of the program.

FSU-Teach will institute a rigorous, continuing program evaluation component that will focus on data collection on all of its aspects including, but not limited to, student recruitment and retention, teaching success and retention of its graduates, program quality and success, student demographic data, and graduation rates.

FSU-Teach goals are for its graduates to be well-prepared:

- In their teaching content area and in pedagogy.
- To practice research-based pedagogical techniques for science or mathematics teaching and to achieve the goals of the NSES or NCTM as appropriate in their classrooms.
- To meet the challenges of the modern secondary-school environment.
- To become reflective science or mathematics teaching practitioners who engage in extensive, life-long professional development and who will understand ongoing content and pedagogical development as an integral part of their profession.
- To understand and involve their students in inquiry in their content discipline.

FSU-Teach Phone Directory

FSU-TEACH Line	209 MCH	644-1935
Logan Chalfant	lchalfant@fsu.edu	645-9877
Clark, Kathleen	kclark@fsu.edu	644-8497
Dyar, Cindy	cdyar@fsu.edu	645-8901
Granger, Ellen	egranger@fsu.edu	644-6747
Harper, Kristine	kcharper@fsu.edu	644-5888
Kelso, MaLynn	mkelso@bio.fsu.edu	645-9462
Larson, Christy	cilarson@fsu.edu	
Rose, Karen	kr04@fsu.edu	645-9546
Sampson, Victor	vsampson@fsu.edu	644-1651
Smith, Robin	smith@bio.fsu.edu	645-8927
Southerland, Sherry	ssoutherland@fsu.edu	645-4667
Veader, Vicki	vveader@fsu.edu	645-9463
Faculty Offices Line	203 MCH	645-9464
Student Resource Room Line	218 MCH	645-9488

Affiliated Faculty:

Bellenot, Steve	bellenot@math.fsu.edu	644-7405
Chanton, Jeff	jchanton@fsu.edu	644-7493
Cottle, Paul	cottle@physics.fsu.edu	644-5777
Goldsby, Ken	kagoldsby@fsu.edu	644-3204
Kercheval, Alec	akercheval@fsu.edu	644-8701
Miller, Tom	tmiller@fsu.edu	644-9823
Winn, Alice	awinn@fsu.edu	644-9833

OASIS

Malone, Patrick	pmalone@fsu.edu	644-0031
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Department Advising

Biology	dhutchison@bio.fsu.edu	644-3099
Chemistry	ekistner@admin.fsu.edu	644-1897
Environmental Science	t1m07c@admin.fsu.edu	644-8580
Geoscience	vburns@fsu.edu	644-8582
Math	andrews@math.fsu.edu	644-2278
Physics	fsuteachphysics@gmail.com	644-5777

FSU-Teach
Suggested Course Sequence
Entering at any Point in Academic Career

Semester	1	2	3	4	5	6	7	8
Freshman Entry	Step 1	Step 2	K&L <i>P</i>	CI F&M*	RM CAR	Persp TFE <i>F</i>	PBI	AT
Sophomore Entry	Step 1	Step 2 K&L <i>P</i>	CI F&M* CAR	PERSP TFE RM <i>F</i>	PBI	AT		
Junior Entry	Step 1 K&L F&M* <i>P</i>	Step 2 CI RM CAR <i>F</i>	Persp TFE PBI	AT				
Senior Entry	Step 1 Step 2 K&L F&M* CAR <i>P</i>	CI RM PBI TFE <i>F</i>	Persp AT					

P--indicates timing of provisional acceptance;

F--indicates timing of formal acceptance

*Math majors only

Step 1 – SMT 1043, Inquiry Approaches to Teaching
 Step 2 – SMT 1053, Inquiry-based Lesson Design
 K&L – SMT 3100, Knowing & Learning
 F&M – MAC 3930, Functions & Modeling (math only)
 CI – SMT 4301, Classroom Interactions
 RM – ISC 3523C, Research Methods
 Persp –HIS 3505, Perspectives
 TFE – TSL 4324, ESOL in the Content Area
 PBI – SMT 4664, Project-Based Instruction
 CAR – RED 4335, Content Area Reading
 AT – SMT 4945, Apprentice Teaching

FSU-Teach Advising Checklist

Name _____ Major _____

Date _____ (Check here _____ if this is a graduation check.)

Items in **bold** must be **completed by the end of the course listed immediately above it**, with the exception of the **student teaching application**, which must be submitted at the beginning of SMT 4664, and your **graduation application**, which must be submitted in the first two weeks of the semester in which you take Apprentice Teaching. FSU-Teach requires a **2.5 overall GPA to graduate**.

	<u>Date or Term</u>	<u>Grade</u>
SMT 1043 Step 1	_____	_____
SMT 1053 Step 2	_____	_____
¹ SMT 3100 Knowing and Learning	_____	_____
Begin Portfolio	_____	(begin date)
²FTCE General Knowledge Exam (<i>all 4 sections</i>)	_____	(date passed)
¹ SMT 4301 Classroom Interactions	_____	_____
³Apply to COE Teacher Preparation (<i>upon completion of Lib. Studies</i>)	_____	(date admitted)
⁴ MAT 3503 Functions and Modeling (<i>math students only</i>)	_____	_____
⁵ ISC 3523C Research Methods (<i>science liberal studies</i>)	_____	_____
⁶ HIS 3505 Perspectives on Science and Mathematics (<i>lib. studies</i>)	_____	_____
⁵ TSL 4324 ESOL Instruction in the Content Area	_____	_____
⁵ RED 4335 Content Area Reading	_____	_____
²FTCE Professional Education Exam	_____	(date passed)
²FTCE Subject Area Exam	_____	(date passed)
Add second major (220940) in College of Education	_____	(date added)
¹ SMT 4664 Project Based Instruction (<i>oral comp course</i>)	_____	_____
Submit student teaching application to OASIS (<i>2301 Stone</i>)	_____	(date submitted)
⁷Graduation check with A&S (<i>Longmire</i>)	_____	(date checked)
Preliminary Portfolio Review	_____	(date submitted)
¹ SMT 4945 Apprentice Teaching & SMT 4930 AT Seminar	_____	_____
Apply for graduation with A&S first 2 weeks of semester	_____	(date)
Final Portfolio submitted	_____	(date submitted)

Student Signature: _____ Master Teacher Signature: _____

Content Area Advisor Signature: _____

¹ These courses must be taken in the order listed.

² All 3 tests of the Florida Teacher Certification Exam must be passed before application to Apprentice teaching.

³ State law mandates a **2.5 GPA** and completion of all liberal studies requirements before applying to COE Teacher Education.

⁴ Calculus II is a prerequisite.

⁵ These courses can be taken anytime after prerequisites of Step 1 and 2 are passed.

⁶ The instructor strongly recommends that you have Junior standing for this Upper Level Writing and History liberal Studies course, although this recommendation may be waived for students in the Geoscience/FSU-Teach primary major.

⁷ Your content area graduation check is not complete until you pick up the grad check form from A&S.

Dress Code for Students Participating in Clinical Experiences for FSU-Teach

- Dresses and all outer garments shall fit properly and be of an acceptable length.
- Halters, tank tops, see-through garments, or clothing with revealing/ provocative necklines, bare backs, bare midriff, or spaghetti straps shall not be permitted. In addition, clothing with symbols, phrases, or slogans advertising tobacco, alcohol products, or any controlled substances are unacceptable.
- If shirttails are made to be worn tucked in, they must be tucked in. If shirttails are worn in, and pants are designed to be worn with a belt, a belt or suspenders shall be worn.
- No hats, caps or other head coverings shall be worn inside the building.
- Hair shall be clean, neatly trimmed and well groomed.
- Beards and mustaches shall be allowed if they are neatly trimmed.
- Footwear shall exclude flip flops and slippers.
- Clothing that reveals undergarments shall not be worn.
- Hemlines for skirts and dresses should be long enough not to be distracting.
- Shorts, leggings, warm-ups, spandex or similar tight pants, exercise clothes, or any garment that may appear to be an undergarment are unacceptable.
- Jeans may be worn on days designated by the principal or supervisor, designated spirit days, and teacher in-service days.
- All administrative staff are expected to dress in a professional manner. Male administrative staff are encouraged to wear shirts and ties.
- Male instructional staff shall be expected to wear slacks and collared shirts or other appropriate professional attire. Ties are encouraged and may be required by the principal. Acceptable alternatives for shirt and tie are shirt and pullover sweater or turtleneck sweater and sport coat.
- Jewelry shall not be worn in a visible pierced area other than the ear.



How to Apply for an Internship

FSU-Teach offers paid math/science/education internships to students committed to completing the program (see <http://fsu-teach.fsu.edu/Financial-Support>). These internships are in settings that allow students to build on their formal course experiences. In the past, students have held internships in the following settings:

Challenger Center
Brogan Science Museum
FSU Herbarium
Tallahassee Museum
Science research labs on campus
Local elementary, middle, and high schools

Please follow these steps when applying for an internship:

1. Apply for an internship by completing the application on the next pages and sending it to Robin Smith, 209 Carothers Hall (MCH), smith@bio.fsu.edu. Please be aware that if you are applying for an internship for the first time, you need to list three choices for internships.
2. Robin Smith will match students to the internship according to the needs, schedules, and interests of both the student and the employer and contact the employer with the name(s) and contact information of the applicant(s). **DO NOT CONTACT THE EMPLOYER YOURSELF.**
3. The employer will contact you to set up an interview. **PLEASE RESPOND PROMPTLY TO ALL EMAILS AND PHONE CALLS, SPEAK CLEARLY, AND DRESS PROFESSIONAL FOR THE INTERVIEW.** This is just like a real job interview, and if the employer is not impressed, they do not have to hire you. Another student can be hired.
4. If you are hired, please contact me immediately so that I can provide instructions for being “appointed.” This means filling out lots of paperwork, completing an online applications, and providing your **ACTUAL** Social Security card so that you can get paid. The quicker you complete all of the steps, the sooner you will be paid.

INTERN INTEREST FORM

Return this form to the FSU-Teach office at 209 Carothers Hall as soon as possible. You job choices are listed at <http://www.fsu-teach.fsu.edu/Financial-Support>.

Internship Requirements:

1. Interns must turn in a plan (see reverse) of their FSU-Teach course of study.
2. Interns must have a GPA of 2.5 or above.
3. Interns must attend their FSU-Teach classes on any day for which they claim hours on their timesheet. It is not acceptable to be too sick for class, but well enough to intern the same day.
4. Only one semester in the plan may include an internship without an FSU-Teach class that term.
5. For any semester that includes an internship and no FSU-Teach class, the intern must attend WeTEACH meetings.

FSU-Teach will attempt to match you with your first choice of internship, but priority will be given in the following order: students who are specifically requested by a specific internship site, students who have been in the program the longest, students who are taking FSU-Teach courses. You will be contacted by FSU-Teach via email. Please respond immediately so an interview, if requested, can be arranged. Once hired by the employer, you will have to complete FSU application procedures with Vicki Veader, 209 MCH.

Name: _____ Campus ID: _____

Email: _____ cell phone: _____

1. Did you have an internship last semester? _____ If so, where? _____
2. Do you have a GPA of 2.5 or above? _____
3. Do you have a car? _____
4. What FSU-Teach course(s) will you be taking during the semester you are requesting an internship? _____

DO NOT START WORKING UNTIL YOU HAVE A SCHEDULE FROM YOUR SUPERVISOR AND YOU HAVE PROVIDED IT TO ROBIN SMITH.

#1 Choice: _____

#2 Choice: _____

#3 Choice: _____

Please list the semester and year you intend to take the following FSU-Teach courses.

Step 1: _____

Step 2: _____

Knowing & Learning: _____

Functions & Modeling: _____

Classroom Interactions: _____

Research Methods: _____

Perspectives: _____

Reading in the Content Area: _____

Teach English-Language Learners: _____

Project-Based Instruction: _____

Apprentice Teaching: _____

Student Financial Support

Noyce Scholarships:

Junior and Seniors who are enrolled in the FSU-Teach program may apply for up to two years of support from the National Science Foundation through the Robert Noyce Scholarship Program. Each one-year award of \$12,000 carries a requirement to teach for two years in a high-needs school district, which is defined as one where at least half the students are eligible for reduced lunches, a third of teachers are out of field, and 15% of teachers are leaving annually over the last three years. The goal of this National Science Foundation program is to attract a diverse representation of students into mathematics or science teaching and support these students as they prepare for and begin teaching secondary science or mathematics in high-needs schools. To best prepare students to excel in such settings in their first years of teaching, The Noyce Program will support these students during their teacher preparation as they gain experience in high-needs settings under the guidance of successful teachers who have met the challenges of teaching in these settings and chosen them for their practice. Over the five-year award period, the Noyce program will provide 42 [scholarships](#) for FSU-Teach students and 48 summer [internships](#) for FSU-Teach students and students interested in exploring math or science teaching. For more information go to <http://www.fsu-teach.fsu.edu/noyce/> .

NMSI Scholarships:

The FSU-Teach program has funding from the National Math and Science Initiative to fund scholarships for \$4000 a semester for up to two semesters. The scholarships are primarily need-based, but academic record is also considered. See the following page for an application.

Federal Financial Aid:

Federal financial aid for students majoring in many of the sciences and mathematics. For more information go to <http://studentaid.ed.gov/PORTALSWebApp/students/english/SmartGrants.jsp> .

TEACH Grants:

The TEACH Grant program was created to assist in the development and recruitment of teachers for high need programs in public or private elementary or secondary schools that serve low income families. Receive up to \$4000 annually for full-time enrollment. For more information go to <http://financialaid.fsu.edu/aid/TEACH.html>.

FSU-Teach Announces:

The Robert Noyce Teaching for Equity Scholarship & Internship Program



What's this? Money for FSU-Teach students? Sweet! So what are those post-grad requirements?

The Program:

The Noyce Scholarship Program was designed to attract a diverse representation of students into mathematics or science teaching and to support these students as they prepare for and begin teaching secondary science or mathematics. Scholarship recipients either commit to a period of teaching in a high-needs school, or to repay the full dollar amount of the loan.

Whoa! Worried about what high-needs means? Don't be; it just means that on average the students at that school are not achieving at the levels they should be and the school needs my help!



The Scholarship:

Juniors and Seniors can receive \$12,000 for each scholarship/academic year.

The Internship:

Freshmen and Sophomores can earn up to \$900 in the summer working for 2 weeks in an educational setting like a science or math summer camp or museum **just to see** if they would like teaching.

For more information and an application go to:

<http://fsu-teach.fsu.edu/noyce/>

or contact Robin Smith at

Phone: 850-645-8927

Email: smith@bio.fsu.edu

NSF Robert Noyce Scholarship Program

What is a forgivable loan?

The Noyce Scholarship Program is considered to be a forgivable loan because you can repay the loan by agreeing to teach in a high need school for two years for each year of support you receive. Recipients of scholarships must commit to completion of two years of service as a mathematics or science teacher for each year the scholarship is received. Service must be completed within 8 years after graduation from the program for which the scholarship was awarded and must be performed in a high-need local educational agency.

If I receive a scholarship, do I get to select my school or does the Noyce Program pick a school for me?

You get to select the schools to which you would like to apply for a job, and which offer of employment you want to accept. The Noyce only requires that the school meets the definition of being a high need school.

What is high need again?

The term "high need local educational agency" means a local educational agency that serves an elementary or secondary school located in an area in which there is:

- A. a high percentage of individuals from families with incomes below the poverty line;
- B. a high percentage of secondary school teachers not teaching in the content area in which the teachers were trained to teach; or
- C. a high teacher turnover rate.

What if I decide that I do not want to teach in a high need school or teach at all?

If you teach in a school that is not high need, or if you do not go in to teaching at all, then the scholarship becomes an interest-free loan. The entire amount of the loan will have to be repaid in full within 8 years of graduation from college. It is expected that failure to satisfy the academic requirements of the program or to complete the service requirement will result in forfeiture of the scholarship or stipend award, which will revert to a loan with repayments pro-rated accordingly to reflect partial service completed. The repayment plan will be arranged with the Noyce Scholarship Program directors and compliance will be monitored. Collection procedures will be initiated if repayment is not completed.

What if I don't complete the whole 2 years of teaching?

If you fail to complete the teaching obligation, the forgivable loan will revert to a loan with repayments pro-rated accordingly to reflect partial service completed. The repayment plan will be arranged with the Noyce Scholarship Program directors and compliance will be monitored. Collection procedures will be initiated if repayment is not completed.

Are there any other obligations besides teaching in a high need setting for 2 years per year of award?

Each recipient of the scholarship or stipend accepts the terms of the scholarship or stipend and agrees to provide the institution with annual certification of employment and up-to-date contact information and to participate in surveys provided by the institution of higher education and program evaluators as part of project-level and program evaluation efforts.

What if it becomes impossible for me to teach, such as an illness?

FSU-Teach will make allowances for extreme hardship or other circumstances for which it is not in the best interests of the school district or not feasible for the scholarship/stipend recipient to fulfill the service obligation. FSU-Teach may establish procedures for waiving or suspending repayment of scholarships or stipends in cases of extreme hardship or other circumstances that would preclude the fulfillment of the service obligation.

Can my FSU-Teach instructors provide my references?

No, your master teachers may not serve as references, but other current or former instructors at FSU or at other colleges or high school and employers may provide references.

Do I have to use the reference form? What if my reference prefers to write a letter?

No, you do not have to use the form. It is for your references' convenience, but if they prefer to write a letter, they should address it to the Noyce Selection Committee, Florida State University, 1021 Atomic Way, 209 MCH, Tallahassee, FL 32306-4482.

What if I don't finish the FSU-Teach program when I graduate?

If you do not graduate with the FSU-Teach double major and become certified to teach science or mathematics at the secondary level, the scholarship would revert to a loan with a repayment plan will be arranged with the Noyce Scholarship Program directors. Compliance will be monitored and collection procedures will be initiated if repayment is not completed.

What if I want to go to graduate school first?

You should have time to complete a graduate degree before completing your teaching obligation. The teaching must be completed within 8 years after graduation from the program for which the scholarship was awarded and must be performed in a high-need local educational agency.

FSU-Teach Candidate Portfolio

In addition to being a great organizational tool to collect, store, and retrieve your FSU-Teach program projects for reference and guidance, the Candidate Portfolio is a continuing record of your progress through and improvement in the FSU-Teach program of study. The Candidate Portfolio should be kept in a 2-inch binder that you bring to each course. It would also be wise to keep a copy of your portfolio on a flash drive or hard disk. As you progress through the program, you will further develop your portfolio by inserting major projects you have completed along with your self assessment, new ideas and strategies about assessment or management, and a “wish list” of goals and strategies for improving your own practice. Your portfolio will serve as a major resource for and contribute significantly to your Apprentice Teaching experience.

While there is some flexibility in the organization of your Candidate Portfolio, it should minimally include:

Section 1: Program Goals and Professional Growth

FSU-Teach will provide a description of the program and its expectations for teacher preparation and how the course of study supports the expectations and professional growth. The expectations will serve as a standard for you to monitor your progress toward becoming an effective inquiry-based teacher.

FSU-Teach will also provide a description of the Curriculum or Course of Study, explaining the structure, coherence, and rationale behind the development of the FSU-Teach program. You will be instructed to examine the structure, coherence, and rationale of your own content major (e.g., geosciences, biology); you may be surprised to learn that your content major is not just a bunch of courses, but a carefully selected course of study in which certain foundational courses provide critical support for subsequent courses in the program.

Based on the Expectations and Course of Study subsections above, you will conduct regular self assessments and develop your own goals and strategies for improvement to document your professional growth throughout the program. At the end of each course, you will assess yourself on each of the program expectations. In the subsequent course, you will use your self-assessment results to develop a plan to improve on three areas in which you feel you are weakest. By the end of that subsequent course, you will again self-assess to determine your professional growth.

Section 2. Major Projects within Field Experience Courses

This section will include divisions for each of the courses with major projects based on your field experiences. You will include the description of the project provided to you by the instructor, the rubric for the project, a copy of your project including instructor feedback and rubric, and a self-assessment of your work. This section will serve as a major resource for your Apprentice Teaching experience; you will be able to refer back to earlier experiences for ideas and

information on what works and doesn't work in a variety of instructional settings. The major projects to be included in this section are:

Step 2 - Final Project [optional]

Knowing & Learning – Lesson Design and Implementation Project

Classroom Interactions – Video Analysis Project

Project-Based Instruction – Lesson Assessment and Refinement Project and Unit Plan

Section 3. Clearinghouse

This section will be the least structured as it will serve as a clearinghouse of materials you will collect throughout the program that you want to keep for future reference. These materials may be about strategies used (or not used), reflections and notes about how they were used and whether they were effective (or why they were not used or should not longer be used), and readings you have collected on topics such as assessment that you found useful or instructive. This is not an exhaustive list, but at a minimum you may want to create subsections such as:

Subsection 1. Instructional Strategies

Subsection 2. Assessment Strategies

Subsection 3. Management Strategies

Subsection 4. Etc.

Chalk and Wire Steps

When you log in (chalkandwire.com/fsu), you will be on the Dashboard. Click on the My Portfolios link near the top of the page.

Select your Department by clicking the Show All Departments link and then clicking the Join link in the Action column.

Now start a new portfolio by clicking the Add New Portfolio link near the top of the page. If you have already created a portfolio and need to start a new one, it will be below the list of portfolios. On the Add Portfolio page, use the drop down menu to the right of Table of Contents to select your program. Select a theme by clicking on the thumbnail on the page. I used the FSU theme in the bottom right corner of the theme list. When you click on the thumbnail, your new portfolio will be created and the portfolio will open. You will see the courses that have Chalk and Wire assignments for your program. If you used the FSU theme, they will be on the left.

To reopen a previously created portfolio, click on the edit link in the Actions column.

At the program portfolio, you will see the list of courses. Click on the course number. You will usually see the course number and some links at the top of the page.

You can mouse over the link to read the entire title of the assignment. When you click on the assignment link, you will see a page where the course number is a link and the assignment title is in plain text.

Click the Add Content button near the top of the page. The first section allows you to add text directly to the portfolio. Usually you will scroll farther down the page to the Add Artifact section. This is where word processed documents, spreadsheets, and slideshows are uploaded.

You may see a list of documents that you have already uploaded. If the document you need to link is there, select the document title and click the double arrow facing the Artifacts in Paragraph list (>>). When the document name shows up in the right hand column, scroll back up to the top of the page and click the Save button.

If you have not already uploaded a document and need to, go to the Artifact section and click the Browse button. Navigate to the document and select it. Click the Upload button. It will automatically load into the Articles in Paragraph section. Scroll back to the top of the page and click the Save button.

Now you will see the Submit Page button in the button bar where the Add Content button is. The Submit Page button will be to the right. Click that and you will now go to an intermediate step that has a check box for the page you wish to assess. Click in the check box and click the Continue button. On the next page you will select your instructor. Click in the check box to the left of your instructor's name and click the Submit button. If you do not see your instructor's name, please e-mail me (jnalon@fsu.edu) and let me know who is missing.

You should go back to the portfolio page and see a note you have successfully submitted your assignment.

FSU-Teach Checklist for Chalk & Wire Submissions

The FSU-Teach program requires each student to demonstrate competency in the state educator standards, The Florida Educator Accomplished Practices (the FEAPs can be found at, <http://www.fldoe.org/profdev/FEAPs/>) in an online portal created using the Chalk & Wire program. The Chalk & Wire program is used to keep track of the critical tasks that you complete in FSU-Teach courses. [You must upload your required critical tasks during the course in which it is assigned--typically you will not receive a final grade for the course until all coursework required has been uploaded].

Below is a description of assignments for each course that you will add the portfolio.

Name: _____ Major: _____

SMT 3100, Knowing & Learning

Semester Taken _____

_____ Begin Chalk & Wire during SMT 3100 _____ Advising Sheet

_____ Lesson Design and Enactment Project

SMT 4301, Classroom Interactions

Semester Taken _____

_____ Two-Day Revised Lesson Plan _____ Management Plan

_____ Video Analysis Project _____ Advising Sheet

SMT 4664, Project-Based Instruction

Semester Taken _____

_____ Lesson Assessment and Refinement Project

_____ Project-Based Unit _____ Advising Sheet

- ___3. Evidence of successful clearance of fingerprinting/background check for public schools.
- ___4. Adequate progress toward a math or science primary major.
- ___5. Certification from Basic Division (to Arts & Sciences).

Checklist for Liberal Studies and university requirements:

I. ¹	math (pure) _____	(pure or stats) _____
II.	English comp _____	comp II _____
III. ²	history _____	social science _____
IV.	humanities _____	literature _____
	his/hum/ss _____	his/hum/ss _____
V. ³	natural science _____	matching lab _____
	add'l science _____	
Area requirements: ⁴ x ___ y _____		Gordon ⁵ 1) ___ 2) ___ 3) ___ 4) ___
	comp lit _____	oral comp _____
	summer _____	degree hours _____

Academic Services use only:

CURRENT major code/DIV _____ / _____	
NEW major code/DIV _____ / _____	Coded by _____
CERTIFICATION sought/grade range _____ / _____	
ADVISOR sign/date _____ / _____ - _____ - _____	

¹ Math liberal studies requirements are included in the Mathematics/FSU-Teach track.

² The Perspectives on Science and Math course will fulfill a history requirement.

³ Natural Science liberal studies requirements are included in the science content tracks. Research Methods will fulfill science requirement for the Mathematics/FSU-Teach track.

⁴ Research Methods will fulfill the computer literacy requirement. The Perspectives course will fulfill one Gordon Rule requirement. Project-Based Instruction will fulfill the oral competency requirement.

⁵ No longer referred to as 'Gordon Rule' after Fall 2013.

Video Camera Instructions

SETTING UP AND RECORDING

Be sure to check that the attachment piece for the tripod is attached to the camera. Be sure both parts of the 2-part DC plug are included.

Set up the camera in an out-of-the-way location that will give the broadest view of the classroom, students, and main instruction area. Make sure the power cord will not cause someone to trip.

Flip open the view screen panel and press the oblong, silver power button on top of the camera. The scene should appear on the view screen. On the back of the camera, set the outer ring to the green dual shot icon.

Check the space left on the memory card in the upper right part of the screen: the third bit of data is the memory capacity and should be over 2 hours for good measure. If it's not, erase the disk by initializing (see Erasing the Memory Card below).

To begin recording, press the oblong button with the red center on the back of the camera.

Zoom in and out using the black telephoto on top of the camera. If you would like to take a still photo (of a lab set up or other student work) press the record button again to stop recording and then press the round silver button on top of the camera.

DOWNLOADING VIDEO TO EXTERNAL COMPUTER HARDDRIVE

The easiest way to download your video is to remove the SD card from the camera and insert it into your computer's external SD drive slot. Move or Copy the video file to your computer. If you do not have an SD drive, you may take the camera to Robin Smith (209 MCH) and she can download the video to an external hard drive and you can transfer the file to your computer using your USB port.

ERASING THE MEMORY CARD

To erase the memory card you will need to initialize it. Set the outer ring on the camera to the white video icon.

Press the FUNC. button on the lower left edge of flip out panel. Use the SET button to toggle down to the last icon that appears (it looks like a screen menu), then press SET.

Use SET again to toggle down one icon (from camera setup to memory oper.) and press SET.

Toggle to Initialize and press SET. Press SET again to Initialize and toggle and press again for YES. When initializing is done, press FUNC. again and return the camera to the dual shot icon using the outer ring on the back.

Florida Teacher Certification Examination Series

The FTCE is a three-part examination required by Florida law for college students planning to become teachers to demonstrate mastery of basic skills, professional knowledge, and content area of specialization.

Information about the Florida Teacher Certification Exam (FTCE) can be found at <http://www.fldoe.org/asp/ftce/> and <https://app1.fldoe.org/ftce/Portal/>. The portal contains links for Registration information is <http://www.fl.nesinc.com/index.asp>. Test prep guides are also available for check out in the FSU-Teach office, 209 MCH.

During the 2009 Florida Legislative session, general revenue funds were not appropriated by the legislature for developing and administering postsecondary examinations. This has necessitated significant changes in examinee fees and other services related to the Florida Teacher Certification Examinations (FTCE). The following fees for first-time examination were approved by the State Board of Education in May 2009:

General Knowledge Test	\$130.00
Professional Education Test	\$150.00
Subject Area Examination	\$200.00

The fee to retake a specific exam is \$20.00 more than the first-time registration.

Sample tests can be downloaded for free at http://www.fl.nesinc.com/FL_TIGS.asp.

Beginning January 1, 2010, as an additional measure to deal with these budgetary issues, the Department has suspended all paper-based testing (PBT) administrations for the FTCE/FELE program. The Department will conduct computer-based testing (CBT) at Pearson VUE professional testing. The testing site in Tallahassee is:

Tallahassee Pearson VUE Test Center
 Capital Circle Commerce Center
 508 Capital Circle SE, Suite D-1
 Tallahassee, FL 32301

FSU-Teach recommends the following schedule for taking the three parts of the FTCE:

General Knowledge	Take after completing 60 credit hours
Professional Education	Take right AFTER completing RED 4335
Subject Area	Take one full semester BEFORE Apprentice Teaching

All three exams MUST be taken before applying to the teacher education program and *passed* before applying for student teaching.



College of Education

Undergraduate Application Teacher Preparation Programs

Office of Academic Services & Intern Support
2301 Stone Bldg., Mail Code: 4460

Name _____ Date _____

D.O.B. ____ / ____ / ____

FSUSN/MAT _____ / _____ Phone (____) _____

Address _____

Street	Apt/Suite	City	State	ZIP
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FSU E-mail _____ Term **FA** **SP** **SU** _____

For which program are you applying? **

_____ English Education, 6–12	_____ Social Science Ed, 5-9/6-12
_____ Visual Dis Education , K–12	_____ Visual Dis Studies , K–12
_____ Elementary Ed, Panama City Campus	

Out-of-unit TE Program (circle one): Music Art FSU-Teach _____ (major)

The following main campus programs require a separate application (do not use this form); new juniors are admitted for the Fall term only:

Early Childhood Education, Pre-K–3	} Apply directly to department by March 1 st
Elementary Education, K–6	
Exceptional Student Education, K–12	

Sport Management (not a Teacher Prep program)

- Apply directly to department by March 1st
- http://www.fsu.edu/~smrmpe/programs/sm/Application_2010.doc

**** Attention transfer students:** Admission to FSU and an AA degree do NOT guarantee your admission to a Teacher Prep program. You must submit this application to 2301 Stone Bldg.

**** ALL students are considered 'Not Formally Admitted'** until this application has been processed and approved, regardless of the number of major courses you have taken.

Student Teaching Application Forms General Directions

READ ALL INSTRUCTIONS BEFORE COMPLETING YOUR APPLICATION.

FORMS AVAILABLE AT: [FSU College of Education Student Teaching Application Forms](#)
You will need to complete and print the “General Application” under Applications (MS Word templates).

The Student Teaching Application is a professional document. You must prepare this application with care. It is a reflection of you and your FSU program and will be reviewed by principals and teachers in various schools. **No handwritten applications will be accepted.**

The faculty and staff of the Office of Academic Services and Intern Support (OASIS), 2301 Stone Building (STB) are available to help you prepare your Student Teaching Application.

Please note:

- **Placements are subject to availability and district and school acceptance of interns.** Therefore, placements are not guaranteed.
 - Due to budget cuts, beginning in fall 2010, the College of Education will restrict intern placements **in Area V** to Pembroke Pines/FSU, **K-5** Charter School (Broward County), and **in Area III** to Lake and Orange Counties.
 - The College of Education will continue to support placement of interns in Areas 1, 4, and, where possible, Area 2 (secondary school placements only).
1. Student Teaching Application Forms. You must be admitted to Teacher Education **BEFORE** your student teaching application will be considered. Contact Office of Academic Services and Intern Support (2301 Stone Building) for Teacher Education admission information.
 2. Application forms are available online (use links below). You may want to access the application, print it, review it and make sure you have all the information you need before you type the application. Type the entire application online (first, download the file, rename it, and save it on your hard drive).
 3. You may indicate on the application your first and second choice of requested Student Teaching locations. Only those counties listed for your program may be requested. Use the appeals process to request placement in an out-of-area location.
 4. After your application is completely typed, print it and make 5 copies.
 5. All copies of the application must be signed by the applicant and the advisor.
 6. Submit three (3) copies of the typed application to the Office of Academic Services and Intern Support (2301 Stone Building) no later than the posted deadline.
 7. Submit one (1) typed copy to your program.
 8. Keep one (1) typed copy for yourself.
 9. Submit one (1) unofficial transcript with your student teaching application.
 10. It is strongly recommended that you submit with your application a current resume.
 11. You are required to obtain two copies of the Student Teaching Handbook and to attend Student Teaching Orientation sessions prior to beginning your internship.

Appendices

BIOLOGY / FSU-TEACH

Colleges: Arts and Sciences
Education

Degree: B.S.

Limited Access: No

Contacts: Biology FSU-Teach
Dennis Hutchison Dr. Robin R. Smith
1067 King Bldg, FSU 209 Carothers Hall, FSU
Tallahassee, FL 32306-4295 Tallahassee, FL 32306-4482
(850) 644-3099 (850) 645-8927
dhutchison@bio.fsu.edu rrsmith@fsu.edu

Web Page: <http://fsu-teach.fsu.edu/>
<http://www.bio.fsu.edu/undergrad/advising> (includes advisor
contact information)

Description of Major

FSU-Teach is an innovative approach to teacher education that involves collaboration between scientists, mathematicians and education faculty at Florida State University. In Biology /FSU-Teach, students will develop deep biology knowledge and the knowledge, skill, and experience needed to be an effective science teacher. The program will pay for tuition for the first two Education/Teaching courses. Work study positions with scientists, mathematicians and local schools are available. For more information, see our Web site, <http://fsu-teach.fsu.edu/>.

This is a double-major only program. FSU-Teach majors are first admitted into their primary, discipline-specific major and must meet the state-wide common program prerequisites for that major, in this case, Biological Science. Later, students apply for admission into a secondary major within the College of Education called Science Teaching/FSU Teach. Upon graduation, students are awarded the B.S. degree with majors in Biological Science and Science Teaching.

Prerequisite Coursework: 0 beyond other requirements.

All of the following courses also apply toward Liberal Studies, major and/or collateral requirements. The following are required in preparation for the upper-division major. Contact the department for information on approved substitutes.

BSC X010, X010L (3, 1) Biological Science I, Lab

BSC X011, X011L (3, 1) Biological Science II, Lab

CHM X045, X045L (3, 1) General Chemistry I, Lab

CHM X046, X046L (3, 1) General Chemistry II, Lab

CHM X210, X210L (3, 1) Organic Chemistry I, Lab and CHM X211, X211L (3,1) Org. Chem. II, Lab

or PHY 2053C (4) College Physics A with Lab and PHY 2054C (4) College Physics B with Lab

(Students should contact the department regarding selecting courses to meet this requirement.)

MAC X311 (4) Calculus with Analytic Geometry I

MAC X312 (4) Calculus with Analytic Geometry II or approved statistics (STA 2071 at FSU--Preferred)

*SMT X043 (1) Step 1: Inquiry Approaches to Teaching

*SMT X053 (1) Step 2: Inquiry-Based Lesson Design

* Transfer students will be able to take SMT X043 and SMT X053 while enrolled at FSU.

Note. State-wide common prerequisites are always under review. For the most current information and for approved alternative courses, visit the “Common Prerequisites Manual.” This is available from the “Student Services” section of <http://www.flvc.org>.

Requirements for graduation in the College of Arts and Sciences include:

The College of Arts and Science requires proficiency in a foreign language through the intermediate (2220 or equivalent) level or sign language through the advanced (2614 or equivalent) level.

Progress in this major and formal admission to FSU-Teach and Teacher Education.

FSU native and transfer students will progress to upper-division (junior) status in the College of Arts and Sciences in the same manner as other Biological Science majors: an AA degree or 52 earned credits (including at least half of the general education requirement, including English composition and mathematics), at least a 2.5 GPA and completion of appropriate milestones. To be recognized as “formally admitted” into this major, students must meet the following requirements: 1) certification to upper division (or transfer admission into Mathematics as a junior); 2) completion of Liberal Studies or an AA; 3) satisfactory completion of “Step 1” and “Step 2” courses; 4) a cumulative GPA of at least a 2.5; 5) completion of all of the common prerequisite courses for the major; and 6) a passing score on all four parts of the FTCE General Knowledge Test. Once these are complete, the student must complete an “Undergraduate Application to Teacher Education” in 2301 Stone Building, at which time the second major in Education will be added.

D/F Policy in Biological Science

1) A student who has not yet completed the prerequisite courses required for upper-division status (CHM 1045 & lab, CHM 1046 lab, BSC 2010 & lab, BSC 2011 & lab) and earned more than one unsatisfactory grade (U, F, D-, D, D+) in courses required for the major in biological science (biological science, chemistry, physics, mathematics, and statistics) and their prerequisites at Florida State University or elsewhere, whether or not repeated, will not be permitted to graduate from Florida State University with a degree in biological science;

2) A student who has completed the prerequisite courses required for upper-division status (CHM 1045 & lab, CHM 1046 & lab, BSC 2010 & lab, BSC 2011 & lab) and earned more than three unsatisfactory grades (U, D-, D, D+) in courses required for the major in biological sciences (biological science, chemistry, physics, mathematics, and statistics) and their prerequisites at Florida State University or elsewhere, whether or not repeated, will not be permitted to graduate from Florida State University with a degree in biological science.

Mapping

Mapping is FSU’s academic advising and monitoring system. Academic progress is monitored each Fall and Spring semester to ensure that students are on course to earn their degree in a timely fashion. Transfer students must meet mapping guidelines to be accepted into their majors. You may view the map for this major at www.academic-guide.fsu.edu/.

Major Program of Studies at FSU: 78 hours.

Required Biology and Collateral courses for the Biology Major: 52 hours

This major requires the following for graduation: 1) Completion of a minimum of 28 hours of biological

science courses, with grades of C- or higher. At least 20 of these hours must be taken at FSU. 2) Completion of a minimum of 3 biological science lab or field courses with grades of “C-“or higher. 3) Completion of collateral courses in chemistry, math, and physics with a grade of C- or higher. 4) A minimum combined 2.0 GPA (no forgiveness) in all courses required for the major, including collaterals, taken at FSU or elsewhere.

Required Lower Division Biological Sciences Courses (8 hours)

BSC 2010 (3) Biological Science I
 BSC 2010L (1) Biological Science I Lab
 BSC 2011 (3) Biological Science II
 BSC 2011L (1) Biological Science II Lab

Other Required Biological Sciences Courses (15 hours)

PCB 3063 (3) Genetics
 PCB 4674 (3) Evolution
 BSC 3XXX (3) Eukaryotic Diversity
 * ISC 3523C (3) Research Methods
 PCB 3134 (3) Cell Structure and Function

Area Requirements (at least 6 hours).

Two courses representing two different areas:

Area I: Cell and Molecular Biology
 MCB 4403, 4403L (3, 2) Prokaryotic Biology
 PCB 4253 (3) Animal Development
 PCB 4024 (3) Molecular Biology

Area II: Physiology

PCB 3743 (3) Vertebrate Physiology
 PCB 4843 (3) Fundamentals of Neuroscience

Area III: Ecology and Environmental Sciences

BSC 3052 (3) Conservation Biology
 PCB 3043 (3) Ecology
 ZOO 4513 (4) Animal Behavior

Collateral Courses: 23 hours

These courses may be used to meet Liberal Studies and minor requirements or taken in addition to them. Chemistry and Calculus/Statistics coursework should be completed by the end of the sophomore year.

CHM 1045, 1045L (3,1) General Chemistry I with Lab
 CHM 1046, 1046L (3,1) General Chemistry II with Lab
 CHM 2210 (3) Organic Chemistry I
 PHY 2053C (4) College Physics A with lab (or approved substitute)
 MAC 2311 (4) Calculus I
 STA 2171 (4) Statistics for Biology

Required courses for the Education major: 29 hours (26 hours beyond the Biology requirement)

SMT 1043 (1) Step 1: Inquiry Approaches to Teaching
 SMT 1053 (1) Step 2: Inquiry-Based Lesson Design
 SMT 3100 (3) Knowing and Learning
 SMT 4301 (3) Classroom Interactions
 * ISC 3523C (3) Research Methods
 HIS 3505 (3) Perspectives on Science and Mathematics
 SMT 4664 (3) Project Based Instruction

RED 4335 (3) Content Area Reading for Secondary School Teachers

TSL 4324 (3) ESOL Instruction in the Content Area

SMT 4945 (6) Apprentice Teaching

* ISC 3523C applies to both the Biology requirement and the Education requirement.

Computer Skills Competency: 0 hours beyond other requirements. BSC 2010L (1) or ISC 3523C (3).

Oral Communication Competency: 0-3 hours

Students must demonstrate the ability to orally transmit ideas and information clearly. This requirement may be met through appropriate high school speech training or with an approved college-level course.

SMT 4664 will meet this requirement.

Minimum Program Requirements Summary

Total Hrs. Required 120

Liberal Studies 36*

Prerequisite Coursework 0 beyond other requirements*

Major Coursework 78

Foreign Language 0-12 (depending on placement)

Computer Skills 0 beyond prerequisites

Oral Competency 0-3

Electives to bring total hours to 120

*The 22 hours of prerequisite coursework may also be used to satisfy general education and major requirements.

Remarks:

1. A minimum of 45 hours at the 3000 level or above, 30 of which must be taken at this University.
2. Half of the major course semester hours must be completed in residence at this University.
3. The final 30 hours must be completed in residence at this University.

Employment Information

Salary Information: [National Association of Colleges and Employers](#), [Occupational Outlook Handbook](#)

Representative Job Titles Related to this Major: Middle school or high school teacher of mathematics.

Students may also pursue graduate school and career options related to the traditional Biology major

Representative Employers: Public and private schools; research facilities; medical facilities; government organizations; private industry.

Updated: Summer, 2013

FSU-Teach BIOLOGY ACADEMIC MAP (Effective Summer "C" 2013 and after)

This map is a term-by-term sample course schedule. The milestones listed to the right of each term are designed to keep you on course to graduate in four years. The Sample Schedule serves as a general guideline to help you build a full schedule each term. The Liberal Studies and Elective courses must be selected to satisfy all area, literature, lab, Gordon Rule, and multicultural requirements unless your program meets these requirements with major courses. Milestones are courses and special requirements necessary for timely progress to complete a major. Missing milestones will result in one of two types of map registration stops. The first level (*Degree Map Offtrack*) is placed following grade posting if the student has missed a milestone (course and/or GPA) for the first time in the major. If a student is in non-compliance with milestones for two (2) consecutive semesters (excluding summers), a *Major Change Required* stop is placed on the student's registration.

The FSU Teach/Biology major works best if you can start in the highest math for which you have completed the prerequisites. **If you start FSU Teach/Biology in MAC1105, you should plan on taking math and chemistry over the summer to get back on course to graduate in four years. If you begin FSU with earned credit for College Algebra, you should take MAC1140 and CHM1045 with lab during Term 1.

In order to be admitted for the second major in Education, students must have an overall 2.5 gpa, and satisfy the teacher education admission requirements noted here:

<http://www.coe.fsu.edu/Admissions-Scholarships/Undergraduate-Admissions/Teacher-Education-Admissions-Requirements>

(Please note: FSU Teach majors are not required to take EDF1005, EDF2085, or EME2040)

Mapping Coordinator: Shellie Camp E-mail: scamp@fsu.edu

Sample Schedule		Milestones	
Term 1		TERM 1	
ENC1101 or higher English	3	Complete ENC1101	
CHM1045 w/lab	4		
LS History/Humanities/Social Science	3		
LS History/Humanities/Social Science	3		
SMT1043	1		
Total hours	14		
TERM 2		TERM 2	
ENC1102 or other second English	3	Complete ENC1102 or other second English	

MAC1140/MAC1114**	5	Complete MAC1105
CHM1046 w/lab	4	
LS History/Humanities/Natural Science	3	
SMT1053	1	
Total hours	15	
TERM 3	Hrs.	TERM 3
BSC2010 w/lab	4	Complete CHM1045 w/ lab
MAC2311	4	Complete BSC2010 w/lab
SMT3100	3	Complete 2nd Math course
CHM2210	3	
Total hours	15	
TERM 4	Hrs.	TERM 4
BSC2011 w/lab	3	Complete BSC2011 w/lab
CHM2211 (or PHY2053C—preferred)	3(4)	Complete CHM1046 w/lab
SMT4301	3	
STA2171	4	
Elective	2	
Total hours	15(16)	
TERM 5	Hrs.	TERM 5
Foreign Language course	4	SMT3100
PCB3063	3	Apply for formal admission to School of Teacher Education (minimum overall gpa 2.5 required)
PCB3134	3	General Knowledge FTCE
ISC3523C	3	
Total hours	13	
TERM 6	Hrs.	TERM 6
HIS3505	3	Complete either PCB3063 or BOT3015 or BSC3402L
Foreign Language course	4	Completed Foreign Language I
TSL4324	3	ISC3523C
Biology Area Course	3	
BSC XXX	3	
Total hours	16	
SUMMER	Hrs.	
Liberal Studies	8	
Elective	3	
Total hours	11	

TERM 7		Hrs.	TERM 7	
PCB4674		3	Complete a Pre-Graduation Check	
Biology Area course		3	SMT4664	
SMT4664		3	RED4335	
RED4335		3	Professional Ed. & Subject Area FTCE	
Foreign Language course		4		
Total hours		15		
TERM 8		Hrs.	TERM 8	
SMT4945 and SMT4930		6	SMT4945	
Total hours		6	Apply for graduation in 1st two weeks	

Employment Information

Representative Job Titles Related to this Major: Middle School/High School Advanced Placement Biology Teacher

Representative Employers: Middle Schools and High Schools

International Opportunities

International study is available for all students and may include opportunities for internships or taking course work towards various minors. International study may have an impact on the MAP; therefore, it is important to consult with the academic advisor for this major before participating in an International Programs opportunity. Interested students should also contact the Office of [International Programs](#).

This Map is not a contract, either expressed or implied, between the University and the student, but represents a flexible program of the current curriculum which may be altered from time to time to carry out the academic objectives of the University. The University specifically reserves the right to change, delete or add to any Map at any time within the student's period of study at the University.

CHEMICAL SCIENCE / FSU-TEACH

Colleges:	Arts and Sciences Education	
Degree:	B.S.	
Limited Access:	No	
Contacts:	<u>Chemical Science</u>	<u>FSU-Teach</u>
	Dr. Ken Goldsby	Dr. Robin Smith
	goldsby@chem.fsu.edu	209 Carothers Hall, FSU
	Ms. Elizabeth Kistner	Tallahassee, FL 32306-448
	310 DLC, (850) 644-1897	(850) 645-8927
	ekistner@fsu.edu	rrsmith@fsu.edu
	Tallahassee, FL 32306-4390	
Web Page:	http://fsu-teach.fsu.edu/	

Description of Major

In Chemical Science/FSU-Teach, students will develop a broad and conceptual understanding of chemistry and biochemistry, as well as the knowledge, skill, and experience needed to be an effective math teacher. The program will pay for tuition for the first two Education/Teaching courses. Work study positions with scientists, mathematicians and local schools are available. For more information, see our Web site <http://fsu-teach.fsu.edu/>.

FSU-Teach majors are first admitted into their primary, discipline-specific major and must meet the state-wide common program prerequisites for that major, in this case, Chemical Science (FSU Teach). Later, students apply for admission into a secondary major within the College of Education called Science Teaching/FSU Teach. Upon graduation, students are awarded the B.S. degree with majors in Chemical Science and Science Teaching.

Prerequisite Coursework: 0 beyond other requirements.

The following are required in preparation for the upper division major. Contact the department for information on acceptable substitutes. All may also apply toward Liberal Studies, major and/or collateral requirements.

CHM X045, X045L (3,1) General Chemistry I and Lab

CHM X046, X046L (3,1) General Chemistry II and Lab

CHM X210, X210L (3, 1) Organic Chemistry I and Lab

CHM X211, X211L (3, 1) Org. Chem. II and Lab (CHM 2211L is 3 credits at FSU)

MAC X311 (4) Calculus with Analytic Geometry I

* SMT X043 (1) Step 1: Inquiry Approaches to Teaching

* SMT X053 (1) Step 2: Inquiry-Based Lesson Design

* Transfer students will be able to take SMT X043 and SMT X053 while enrolled at FSU.

Note : State-wide common prerequisites are always under review. For the most current information and for acceptable alternative courses, visit the “Common Prerequisites Manual.” This is available from the “Student Services” section of <http://www.flvc.org>.

Requirements for graduation in the College of Arts and Sciences include:

The College of Arts and Sciences requires proficiency in a foreign language through the intermediate (2200 or equivalent) level or sign language through the advanced (2614 or equivalent) level.

Progress in this major and formal admission to FSU-Teach and Teacher Education.

FSU native and transfer students will progress to upper-division (junior) status in the College of Arts and Sciences in the same manner as other Chemical Science majors: an AA degree or 52 earned credits (including at least half of the general education requirement, including English composition and mathematics), at least a 2.5 GPA, and completion of appropriate milestones. To be recognized as “formally admitted” into this major, students must meet the following requirements: 1) certification to upper division (or transfer admission into Mathematics as a junior); 2) completion of Liberal Studies or an AA; 3) satisfactory completion of “Step 1” and “Step 2” courses; 4) a cumulative GPA of at least a 2.5; 5) completion of all of the common prerequisite courses for the Mathematics major; and 6) a passing score on all four parts of the FTCE General Knowledge Test. Once these are complete, the student must complete an “Undergraduate Application to Teacher Education” in 2301 Stone Building, at which time the second major in Education will be added.

Departmental policy on grades and progress in the major.

No required course in which a student has earned a grade below C- may be applied toward any of the degrees in chemistry. Students must also make a C- or better in the first semester of a year sequence course (or obtain the instructor's permission) to continue the sequence.

A student who has received more than two unsatisfactory grades (U, F, D-, D, D+) in the following courses, taken at Florida State University or elsewhere, including repeated unsatisfactory grades in the same course, will not be permitted to graduate with a degree offered by the Department of Chemistry and Biochemistry: CHM 1045, CHM 1045L, CHM 1046, CHM 1046L, CHM 2210, MAC 1105, MAC 1114, MAC 1140, MAC 2311.

A student who has received more than five unsatisfactory grades (U, F, D-, D, D+) in all science or mathematics courses (and their prerequisites) required for any major offered by the Department of Chemistry and Biochemistry, taken at FSU or elsewhere, including repeated unsatisfactory grades in the same required, will not be permitted to graduate with a degree in that major.

Mapping

Mapping is FSU’s academic advising and monitoring system. Academic progress is monitored each Fall and Spring semester to ensure that students are on course to earn their degree in a timely fashion. Transfer students must meet mapping guidelines to be accepted into their majors. You may view the map for this major at www.academic-guide.fsu.edu/.

Major Program of Studies at FSU: 78 hours.

Required Courses for the Chemical Science Major: at least 49 hours

Required Chemistry Courses (37 hours minimum)

CHM 1045, 1045L (3, 1) or CHM 1050, 1050L (3,1) General Chemistry I, Lab

CHM 1046, 1046L (3, 1) or CHM 1051, 1051L (3,2) General Chemistry II, Lab
 CHM 2210 (3) Organic Chemistry I
 CHM 2211, CHM 2211L (3, 3) Organic Chemistry II, Lab
 CHM 3120, 3120L (3, 1) Analytical Chemistry I, Lab
 CHM 3400 (4) Survey of Physical Chemistry or both CHM 4410 (3) and CHM 4411 (3) Physical Chem I, II
 CHM 4610 (3) Inorganic Chemistry
 BCH 3023C (3) Survey of Biochemistry or BCH 4053 (3) Biochemistry I
 ISC 3067 (3) Science, Technology and Society: Research Methods
 One of the following
 CHM 4130 (3) Advanced Analytical Chemistry
 CHM 4080 (3) Environmental Chemistry I
 CHM 4905 (3) Directed Individual Study
 CHM 4906 (1-6) Honors Research, for a total of at least 3 credits

Required Collateral Courses (12 to 14 hours)

MAC 2311 (4) Calculus I
 PHY 2053C (4) College Physics A with Lab or PHY 2048C (5) General Physics I with Lab
 PHY 2054C (4) College Physics B with Lab or PHY 2049C (5) General Physics II with Lab

Required courses for the Education major: 29 hours

SMT 1043 (1) Step 1: Inquiry Approaches to Teaching
 SMT 1053 (1) Step 2: Inquiry-Based Lesson Design
 HIS 3505 (3) Perspectives on Science and Mathematics
 ISC 3523C (3) Research Methods
 RED 4335 (3) Content Area Reading for Secondary School Teachers
 SMT 3100 (3) Knowing and Learning
 SMT 4301 (3) Classroom Interactions
 SMT 4664 (3) Project Based Instruction
 SMT 4945 (6) Apprentice Teaching
 TSL 4324 (3) ESOL Instruction in the Content Area

Computer Skills Competency: 0 hours beyond other requirements. CHM 3120L or ISC 3523C satisfies this requirement.

Oral Communication Competency: 0-3 hours

Students must demonstrate the ability to orally transmit ideas and information clearly. This requirement may be met through appropriate high school speech training or with an approved college-level course. SMT 4664 will satisfy this requirement.

Minimum Program Requirements Summary

Total Hrs. Required 120
 Liberal Studies 36*
 Prerequisite Coursework 0 beyond other requirements*
 Major Coursework 78
 Foreign Language 0-12 (depending on placement)
 Computer Skills 0 beyond prerequisites
 Oral Competency 0-3

Electives to bring total hours to 120

*Prerequisite coursework may also be used to satisfy general education and major requirements.

Remarks:

1. A minimum of 45 hours at the 3000 level or above, 30 of which must be taken at this University.
2. Half of the major course semester hours must be completed in residence at this University.
3. The final 30 hours must be completed in residence at this University.
4. All 3000 and 4000 level chemistry and biochemistry courses must be taken at FSU.
5. Students with five or more grades below C- in required courses or their prerequisites, including transfer courses, will be dropped from the program.

Employment Information

Salary Information: [National Association of Colleges and Employers](#), [Occupational Outlook Handbook](#)

Representative Job Titles Related to this Major: Middle school or high school teacher of chemistry. Students may also pursue graduate school and career options related to the traditional Chemical Science major.

Representative Employers: Public and private schools; research facilities; medical facilities; private industry.

Updated: Summer, 2013

**FSUTeach CHEMICAL SCIENCE ACADEMIC MAP (Effective Summer "C"
2013 and after)**

This map is a term-by-term sample course schedule. The milestones listed to the right of each term are designed to keep you on course to graduate in four years. The Sample Schedule serves as a general guideline to help you build a full schedule each term. The Liberal Studies and Elective courses must be selected to satisfy all area, literature, lab, Gordon Rule, and multicultural requirements unless your program meets these requirements with major courses. Milestones are courses and special requirements necessary for timely progress to complete a major. Missing milestones will result in one of two types of map registration stops. The first level (*Degree Map Offtrack*) is placed following grade posting if the student has missed a milestone (course and/or GPA) for the first time in the major. If a student is in non-compliance with milestones for two (2) consecutive semesters (excluding summers), a *Major Change Required* stop is placed on the student's registration.

The FSUTeach/Chemical Science major is designed for students who wish to teach Chemistry at the middle and/or secondary education levels. Students are strongly encouraged to have credit for College Algebra (MAC1105) prior to enrolling as freshman in the FSUTeach/Chemical Science major. This degree should not be used by someone planning to work as a chemist directly or planning to do graduate work in chemistry.

In order to be admitted for the second major in Education, students must have an overall 2.5 gpa, and satisfy the teacher education admission requirements noted here:

<http://www.coe.fsu.edu/Admissions-Scholarships/Undergraduate-Admissions/Teacher-Education-Admissions-Requirements>

(Please note: FSUTeach majors are not required to take EDF1005, EDF2085, or EME2040)

Mapping Coordinator: Shellie Camp E-mail: scamp@fsu.edu

Sample Schedule		Milestones	
TERM 1		TERM 1	
ENC1101 or higher English	Hrs. 3	Complete ENC1101	
CHM1045 and CHM1045L	4	Complete MAC1105	
MAC1140/MAC1114	5		
SMT1043	1		
Total hours	15		
TERM 2		TERM 2	
	Hrs.		

ENC1102 or other second English	3	Complete ENC1102 or other second English
CHM1046 and CHM1046L	4	Complete MAC1140
MAC2311	4	CHM1045 and CHM1045L
Foreign Language I	4	
SMT1053	1	
Total hours	15	
TERM 3	Hrs.	TERM 3
PHY2053C or PHY2048C	4-5	Complete CHM1046 and CHM1046L
CHM2210	3	
SMT3100	3	
Foreign Language II	4	
Total hours	15-16	
TERM 4	Hrs.	TERM 4
Elective	6	Complete CHM2210
LS Social Science/History	3	
PHY2049C or PHY2054C	3	
Elective	4	
Total hours	16	
TERM 5	Hrs.	TERM 5
CHM3120 and CHM3120L	4	SMT3100
BCH3023C (or BCH4053)	3	Apply for formal admission to School of Teacher Education (minimum overall gpa 2.5 required)
Liberal Studies	3	General Knowledge FTCE
Research Methods	3	Complete CHM2211
Total hours	13	
TERM 6	Hrs.	TERM 6
CHM3400	4	Completed Foreign Language I
CHM elective (one of CHM4080, 4130, 4905, or 4906)	3	Research Methods
Teaching for Equity	3	
Perspectives on Science & Mathematics	3	
Liberal Studies	3	
Total hours	16	
SUMMER	Hrs.	

Liberal Studies	8
CHM Elective	2
Total hours	10

TERM 7	Hrs.	TERM 7
CHM4610	3	Complete a pre-graduation check
CHM Elective	3	SMT4664
SMT4664	3	Secondary School Reading
Content Area Reading	3	Professional Ed. & Subject Area FTCE
Total hours	12	

TERM 8	Hrs.	TERM 8
SMT4945	6	SMT4945
Total hours	6	Apply for Graduation in 1st two weeks
		Must complete departmental exit survey

Employment Information

Representative Job Titles Related to this Major: Middle School/High School/Advanced Placement Chemistry teacher

Representative Employers: Middle Schools and High Schools

International Opportunities

International study is available for all students and may include opportunities for internships or taking course work towards various minors. International study may have an impact on the MAP; therefore, it is important to consult with the academic advisor for this major before participating in an International Programs opportunity. Interested students should also contact the Office of [International Programs](#).

This Map is not a contract, either expressed or implied, between the University and the student, but represents a flexible program of the current curriculum which may be altered from time to time to carry out the academic objectives of the University. The University specifically reserves the right to change, delete or add to any Map at any time within the student's period of study at the University.

GEOSCIENCES, APPLIED / FSU-TEACH

Colleges: Arts and Sciences
Education

Degree: B.S.

Limited Access: No

Contacts:	Applied Geosciences	FSU-Teach
	Dr. Paul Ruscher	Dr. Robin R. Smith
	363 Love Bldg, FSU	209 Carothers Hall, FSU
	Tallahassee, FL 32306-4520	Tallahassee, FL 32306-4482
	(850) 644-2752 or (850) 644-6205	(850) 645-8927
	yburns@fsu.edu	rsmith@fsu.edu

Web Page: <http://fsu-teach.fsu.edu/>

Description of Major

FSU-Teach is an innovative approach to teacher education that involves collaboration between scientists, mathematicians and education faculty at Florida State University. In Applied Geosciences / FSU-Teach, students will develop deep earth science knowledge and the knowledge, skill, and experience needed to be an effective science teacher. Earth science coursework will include coursework in meteorology, geology, oceanography, hydrology, and astronomy. The program will pay for tuition for the first two Education/Teaching courses. Work study positions with scientists, mathematicians and local schools are available. For more information, see our Web site, <http://fsu-teach.fsu.edu/>.

This is a double-major only program. FSU-Teach majors are first admitted into their primary, discipline-specific major and must meet the state-wide common program prerequisites for that major, in this case Applied Geosciences. Later, students apply for admission into a secondary major within the College of Education called Science Teaching/FSU Teach. Upon graduation, students are awarded the B.S. degree with majors in Applied Geosciences and Science Teaching.

Prerequisite Coursework: 0 beyond other requirements.

Students must complete the following prerequisites required for admission in preparation for the upper division major. All of the following may also apply toward major and/or Liberal Studies requirements.

MAC X311 (4) Calculus with Analytic Geometry I

MAC X312 (4) Calculus with Analytic Geometry II

PHY X048C (4-5) General Physics A (5 hours at FSU)

PHY X049C (4-5) General Physics B (5 hours at FSU)

CHM X045, X045L (3,1) General Chemistry I, Lab

CHM X046, X046L (3,1) General Chemistry II, Lab

* SMT X043 (1) Step 1: Inquiry Approaches to Teaching

* SMT X053 (1) Step 2: Inquiry-Based Lesson Design

* Transfer students will be able to take SMT X043 and SMT X053 while enrolled at FSU.

Note: State-wide common prerequisites are always under review. For the most current

information and for acceptable alternative courses, visit the “Common Prerequisites Manual.” This is available from the “Student Services” section of <http://www.flvc.org>.

Requirements for graduation in the College of Arts and Sciences include:

The College of Arts and Science requires proficiency in a foreign language through the intermediate (2220 or equivalent) level or sign language through the advanced (2614 or equivalent) level.

Progress in this major and formal admission to FSU-Teach and Teacher Education.

FSU native and transfer students will progress to upper-division (junior) status in the College of Arts and Sciences in the same manner as other Interdisciplinary Physics majors: an AA degree or 52 earned credits (including at least half of the general education requirement to include the English composition and mathematics), at least a 2.5 GPA, and completion of appropriate milestones. To be recognized as “formally admitted” into this major, students must meet the following requirements: 1) certification to upper division (or transfer admission into Mathematics as a junior); 2) completion of Liberal Studies or an AA; 3) satisfactory completion of “Step 1” and “Step 2” courses; 4) a cumulative GPA of at least a 2.5; 5) completion of all of the common prerequisite courses for the Mathematics major; and 6) a passing score on all four parts of the FTCE General Knowledge Test. Once these are complete, the student must complete an “Undergraduate Application to Teacher Education” in 2301 Stone Building, at which time the second major in Education will be added.

Departmental Policy on Grades and Continuation in the Major

Students must earn a minimum GPA of 2.0 in all required courses numbered 2000 or higher. A student who has received more than five unsatisfactory grades (U, F, D–, D, D+) in courses required for the major (chemistry, physics, mathematics, geology, meteorology, and oceanography) at Florida State University or elsewhere, whether repeated or not, will not be permitted to graduate with a degree in Geosciences.

Mapping

Mapping is FSU’s academic advising and monitoring system. Academic progress is monitored each Fall and Spring semester to ensure that students are on course to earn their degree in a timely fashion. Transfer students must meet mapping guidelines to be accepted into their majors. You may view the map for this major at www.academic-guide.fsu.edu/.

Major Program of Studies at FSU: 93 hours.

Required courses for the Applied Geosciences Major: 64 hours

Geosciences Coursework (38 hours)

AST 1002 (3) Planets, Stars and Galaxies

GLY 2100 (3) Historical Geology

One lab selected from AST 1002L (1) Intro. Astronomy Lab or GLY 2100L (1) Historical Geology Lab

GLY 2010C (4) Physical Geology

GLY 4820 (3) Principles of Hydrology

GEO 2200C (3) Physical Geography

MET 1010L (1) Introduction to Atmosphere Lab

MET 2502C (2) Weather Analysis and Forecasting
 MET 2700 (3) General Meteorology
 MET 3300 (3) Introduction to Atmospheric Dynamics
 MET 3103C (3) Climate Change Science
 OCE 4008 (3) Principles of Oceanography
 OCE 4017 (3) Current Issues in Environmental Studies
 SCE 4835C (3) Teaching Earth and Space Science
Collateral Coursework (26 hours)
 CHM 1045, 1045L (3,1) General Chemistry I and Lab
 CHM 1046, 1046L (3,1) General Chemistry II and Lab
 PHY 2048C (5) General Physics A (with lab)
 PHY 2049C (5) General Physics B (with lab)
 MAC 2311 (4) Calculus with Analytical Geometry I
 MAC 2312 (4) Calculus with Analytical Geometry II
Required courses for the Education major: 29 hours
 SMT 1043 (1) Step 1: Inquiry Approaches to Teaching
 SMT 1053 (1) Step 2: Inquiry-Based Lesson Design
 SMT 3100 (3) Knowing and Learning
 SMT 4310 (3) Classroom Interactions
 SMT 4664 (3) Project Based Instruction
 SMT 4945 (6) Apprentice Teaching
 HIS 3505 (3) Perspectives on Science and Mathematics
 ISC 3523C (3) Research Methods
 RED 4335 (3) Content Area Reading for Secondary School Teachers
 TSL 4324 (3) ESOL Instruction in the Content Area

Computer Skills Competency: 0 beyond major credits. ISC 3523C.

Oral Communication Competency: 0-3 hours

Students must demonstrate the ability to orally transmit ideas and information clearly. This requirement may be met through appropriate high school speech training or with an approved college-level course. SMT 4664 will satisfy this requirement.

Minimum Program Requirements Summary

Total Hrs. Required 120

Liberal Studies 36*

Prerequisite Coursework 0 beyond other requirements*

Major Coursework 93 hours

Foreign Language 0-12 (depending on placement)

Computer Skills 0 credits beyond other requirements

Oral Competency 0-3

Electives to bring total hours to 120

*Prerequisite coursework may also be used to satisfy general education and major requirements.

Remarks:

1. A minimum of 45 hours at the 3000 level or above, 30 of which must be taken at this

University.

2. Half of the major course semester hours must be completed in residence at this University.
3. The final 30 hours must be completed in residence at this University.
4. Students who plan to earn the B. A. degree must complete both a foreign language through the intermediate (2200 or equivalent) level and nine additional hours in the fields of history and humanities.

Employment Information

Salary Information: [National Association of Colleges and Employers](#), [Occupational Outlook Handbook](#)

Representative Job Titles Related to this Major: Middle school or high school teacher. In addition, students may pursue careers appropriate for those with a strong background in science and math.

Representative Employers: Public and private schools, research facilities, government agencies; private industry.

Updated: Summer, 2013

FSUTeach APPLIED GEOSCIENCES ACADEMIC MAP (Effective Summer "C" 2013 and after)

This map is a term-by-term sample course schedule. The milestones listed to the right of each term are designed to keep you on course to graduate in four years. The Sample Schedule serves as a general guideline to help you build a full schedule each term. The Liberal Studies and Elective courses must be selected to satisfy all area, literature, lab, Gordon Rule, and multicultural requirements unless your program meets these requirements with major courses. Milestones are courses and special requirements necessary for timely progress to complete a major. Missing milestones will result in one of two types of map registration stops. The first level (***Degree Map Offtrack***) is placed following grade posting if the student has missed a milestone (course and/or GPA) for the first time in the major. If a student is in non-compliance with milestones for two (2) consecutive semesters (excluding summers), ***a Major Change Required*** stop is placed on the student's registration.

The FSUTeach/Applied Geosciences major is designed for students who wish to teach Earth and Space Science at the middle and/or secondary education levels. Students are strongly encouraged to have credit for College Algebra (MAC1105) prior to enrolling as freshman in the FSUTeach/Applied Geosciences major. This degree should not be used by someone planning to work in the geosciences fields directly or planning to do graduate work in the geosciences.

In order to be admitted for the second major in Education, students must have an overall 2.5 gpa, and satisfy the teacher education admission requirements noted here:

<http://www.coe.fsu.edu/Admissions-Scholarships/Undergraduate-Admissions/Teacher-Education-Admissions-Requirements>

(Please note: FSUTeach majors are not required to take EDF1005, EDF2085, or EME2040)

Mapping Coordinator: Shellie Camp E-mail: scamp@fsu.edu

Sample Schedule		Milestones	
Term 1	Hrs.	TERM 1	
ENC1101 or higher English	3	Complete ENC1101	
MAC2311	4		
AST1002	3		
LS Soc Sci/Hum/His	3		
SMT1043	1		
Total hours	14		
<hr/>		<hr/>	
TERM 2	Hrs.	TERM 2	
ENC1102 or other second English	3	Complete ENC1102 or other second English	
MAC2312	4		

CHM1045 or CHM1050 w/lab	4
LS Soc Sci/Hum/His	3
SMT1053	1
Total hours	15

TERM 3	Hrs.
MET2700	3
MET1010L	1
PHY2048C	5
Liberal Studies	3
SMT3100	3
Total hours	15

TERM 4	Hrs.
PHY2049C	5
MET2502C	2
SMT4301	3
CHM1046 or CHM1051 w/lab	4
Total hours	14

TERM 5	Hrs.
Foreign Language	4
OCE4008	3
GLY2010C	4
ISC3523C	3
LS Soc Sci/Hum/His	3
Total hours	15

TERM 6	Hrs.
GLY2100	4
SCE4835C	3
GLY2100L or AST1002L	1
MET3300	3
TSL4324	3
HIS3505	3
Total hours	17

SUMMER	Hrs.
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TERM 3
Complete CHM1045 and CHM1045L
Complete MAC2311

TERM 4
Complete CHM1046 w/lab or CHM1051 w/lab

TERM 5
SMT3100
Apply for formal admission to School of Teacher Education (minimum overall gpa 2.5 required)
General Knowledge FTCE
Complete MET2700
Complete PHY2048C
Complete MAC2312

TERM 6
Complete MET3300
Begin Foreign Language
ISC3523C

Liberal Studies	5
GEO2200C	3
Total hours	8

TERM 7	Hrs.	TERM 7
OCE4017	3	Complete a pre-graduation check
GLY4820	3	SMT4664
MET3103C (Climate Change Science)	3	RED4335
SMT4664	3	Professional Ed. & Subject Area FTCE
RED4335	3	
Total hours	15	

TERM 8	Hrs.	TERM 8
SMT4945 and SMT4930	6	SMT4945
Total hours	6	Apply for Graduation in 1st two weeks

Employment Information

Representative Job Titles Related to this Major: Middle School/High School/Advanced Placement Earth and Space Science teacher.

Representative Employers: Middle Schools and High Schools, Environmental Agencies and Organizations.

International Opportunities

International study is available for all students and may include opportunities for internships or taking course work towards various minors. International study may have an impact on the MAP; therefore, it is important to consult with the academic advisor for this major before participating in an International Programs opportunity. Interested students should also contact the Office of [International Programs](#).

This Map is not a contract, either expressed or implied, between the University and the student, but represents a flexible program of the current curriculum which may be altered from time to time to carry out the academic objectives of the University. The University specifically reserves the right to change, delete or add to any Map at any time within the student's period of study at the University.

MATHEMATICS / FSU-TEACH

Colleges:	Arts and Sciences Education	
Degree:	B.S.	
Limited Access:	No	
Contacts:	<u>Mathematics</u> Dr. Steve Bellenot Mr. Josh Bowen 208 Love Bldg, FSU 1017 Academic Way Tallahassee, FL 32306-4510	<u>FSU-Teach</u> Dr. Robin R. Smith 209 Carothers Hall, FSU Tallahassee, FL 32306-4482
Phone:	(850) 644-2202	(850) 645-8927
E-Mail:	advisor@math.fsu.edu	rsmith@fsu.edu
Web Page:	http://www.math.fsu.edu/	http://fsu-teach.fsu.edu/

Description of Major

FSU-Teach is an innovative approach to teacher education that involves collaboration between scientists, mathematicians and education faculty at Florida State University. In FSU-Teach: Mathematics, students will develop deep mathematics knowledge and the knowledge, skill, and experience needed to be an effective math teacher. The program will pay for tuition for the first two Education/Teaching courses. Work study positions with scientists, mathematicians and local schools are available. For more information, see our Web site, <http://fsu-teach.fsu.edu/>.

This is a double-major only program. FSU-Teach majors are first admitted into their primary, discipline-specific major and must meet the state-wide common program prerequisites for that major, in this case Mathematics. Later, students apply for admission into a secondary major within the College of Education called Mathematics Teaching/FSU Teach. Upon graduation, students are awarded the B.S. degree with majors in Mathematics and Mathematics Teaching.

Prerequisite Coursework: 0 hours beyond other requirements.

All of the following credits may also be used to meet either general education or major requirements.

*COP XXXX (3) A scientific programming course designed for computer science majors

MAC X311 (4) Calculus with Analytic Geometry I

MAC X312 (4) Calculus with Analytic Geometry II

MAC X313 (4) Calculus with Analytic Geometry III (5 credits @ FSU)

MAP X302 (4) Ordinary Differential Equations (3 credits @ FSU)

*XXX XXXX (4-5) One laboratory based science courses designed for science majors, prefix BSC, CHM, PHY, or GLY

(PHY X048C or X048 & X048L suggested as it is required for the major)

SMT X043 (1) Step 1: Inquiry Approaches to Teaching

SMT X053 (1) Step 2: Inquiry-Based Lesson Design

*See major requirements before selecting courses to meet these prerequisites.

Note: State-wide common prerequisites are always under review. For the most current information and for acceptable alternative courses, visit the “Common Prerequisites Manual.” This is available from the “Student Services” section of <http://www.flvc.org>.

Requirements for graduation in the College of Arts and Sciences include:

The College of Arts and Science requires proficiency in a foreign language through the intermediate (2220 or equivalent) level or sign language through the advanced (2614 or equivalent) level.

Progress in this major and formal admission to FSU-Teach and Teacher Education.

FSU native and transfer students will progress to upper-division (junior) status in the College of Arts and Sciences in the same manner as other mathematics majors: an AA degree; or 52 earned credits (including at least half of the general education requirement, to include English composition and mathematics), at least a 2.5 GPA and completion of appropriate milestones. To be recognized as “formally admitted” into this major, students must meet the following requirements: 1) certification to upper division (or transfer admission into Mathematics as a junior); 2) completion of Liberal Studies or an AA; 3) satisfactory completion of “Step 1” and “Step 2” courses; 4) a cumulative GPA of at least a 2.5; 5) completion of all of the common prerequisite courses for the Mathematics major; and 6) a passing score on all four parts of the FTCE General Knowledge Test. Once these are complete, the student must complete an “Undergraduate Application to Teacher Education” in 2301 Stone Building, at which time the second major in Education will be added.

Continuation requirements.

A grade of C– or better is required in all courses to be counted toward this degree. A student who has accumulated more than one grade below a C– (including grades of U) in the calculus sequence MAC2311, MAC2312, MAC2313 at Florida State University or elsewhere, whether repeated or not, will not be permitted to continue as a major in the department. A student who has accumulated more than five grades below C- (including grades of U) in any mathematics or collateral course required for the degree taken for college credit at Florida State University or elsewhere, whether repeated or not, will not be permitted to continue as a major in the department. The collateral courses include COP3014 or ISC3313, PHY2048C, STA4321 and includes the collateral coursework with prefixes BSC, HIS, MAT, RED, SMT or TSL.

Mapping

Mapping is FSU’s academic advising and monitoring system. Academic progress is monitored each Fall and Spring semester to ensure that students are on course to earn their degree in a timely fashion. Transfer students must meet mapping guidelines to be accepted into their majors. You may view the map for this major at www.academic-guide.fsu.edu/.

Major Program of Studies at FSU: 81 to 82 hours.

Required courses for the Mathematics Major: 44-45 hours

Core requirements (28 hours)

MAC 2311 (4) Calculus with Analytical Geometry I

MAC 2312 (4) Calculus with Analytical Geometry II

MAC 2313 (5) Calculus with Analytical Geometry III

MAP 2302 (3) Ordinary Differential Equations

MAS 3105 (4) Applied Linear Algebra I

STA 4321 (3) Introduction to Mathematical Statistics

PHY 2088C (5) General Physics A with Lab

One of the following (3 hours)

COP 3014 (3) Programming I

ISC 3313 (3) Introduction to Scientific Computing

Choose at least one course from each group (12-13 hours)

Algebra

MAS 3301 (3) Introduction to Modern Algebra

MAS 4302 (3) Introduction to Abstract Algebra

MAS 4203 (3) Theory of Numbers

Analysis

MAA 4402 (3) Complex Variables

MAA 4224 (3) Introduction to Analysis or MAA 4226 (3) Advanced Calculus I

Geometry

MTG 4212 (3) College Geometry

Modeling

MAP 4103 (3) Mathematical Modeling (S/U grade only)

MAP 4176 (4) Actuarial Models

MAP 4180 (3) Game Theory and Applications

MAP 4481 (3) Mathematical Modeling in Biology

At least two electives from the following (6 hours)

At least one elective must be at the 3000-level or higher

MAA 4227 (3) Advanced Calculus II

MAD 2104 (3) Discrete Mathematics I

MAD 3105 (3) Discrete Mathematics II

MAP 4153 (3) Vector Calculus with Intr. to Tensors

MAP 4170 (3) Introduction to Actuarial Science

MAP 4202 (3) Optimization

MAP 4216 (3) Calculus of Variations

MAP 4341 (3) Elementary Partial Differential Equations I

MAS 4106 (3) Applied Linear Algebra II

MGF 3301 (3) Introduction to Advanced Mathematics

MHF 4302 (3) Mathematical Logic

MTG 4302 (3) Elementary Topology I

Or an additional course from the Algebra, Analysis, or Modeling groups.

Required courses for the Education major: 32 hours

SMT 1043 (1) Step 1: Inquiry Approaches to Teaching

SMT 1053 (1) Step 2: Inquiry-Based Lesson Design

SMT 3100 (3) Knowing and Learning

SMT 4664 (3) Project Based Instruction

SMT 4945 (6) Apprentice Teaching

SMT 4301 (3) Classroom Interactions

HIS 3505 (3) Perspectives on Science and Mathematics

ISC 3523C (3) Research Methods
 MAT 3503 (3) Functions and Modeling
 RED 4335 (3) Content Area Reading for Secondary School Teachers
 TSL 4324 (3) ESOL Instruction in the Content Area

Computer Skills Competency: 0 hours beyond other requirements. COP 3014 (3) Programming I or ISC 3313 (3) Introduction to Scientific Computing.

Oral Communication Competency: 0-3 hours
 Students must demonstrate the ability to orally transmit ideas and information clearly. This requirement may be met through appropriate high school speech training or with an approved college-level course. SMT 4664 will satisfy this requirement.

Minimum Program Requirements Summary

Total Hrs. Required 120
 Liberal Studies 36*
 Prerequisite Coursework 0 beyond other requirements*
 Major Coursework 81-82
 Foreign Language 0-12 (depending on placement)
 Computer Skills 0 beyond prerequisites/majo4
 Oral Competency 0-3
 Electives to bring total hours to 120

*The 22 hours of prerequisite coursework may also be used to satisfy general education and major requirements.

Remarks:

1. A minimum of 45 hours at the 3000 level or above, 30 of which must be taken at this University.
2. Half of the major course semester hours must be completed in residence at this University.
3. The final 30 hours must be completed in residence at this University.
4. Students who plan to earn the B. A. degree must complete both a foreign language through the intermediate (2200 or equivalent) level and nine additional hours in the fields of history and humanities.

Employment Information

Salary Information: [National Association of Colleges and Employers](#), [Occupational Outlook Handbook](#)

Representative Job Titles Related to this Major: Middle school or high school teacher of mathematics, mathematician, research analyst.

Representative Employers: Public and private schools, research and engineering firms, government agency.

Updated: Summer, 2013

FSUTeach MATHEMATICS ACADEMIC MAP (Effective Summer "C" 2013 and after)

This map is a term-by-term sample course schedule. The milestones listed to the right of each term are designed to keep you on course to graduate in four years. The Sample Schedule serves as a general guideline to help you build a full schedule each term. The Liberal Studies and Elective courses must be selected to satisfy all area, literature, lab, Gordon Rule, and multicultural requirements unless your program meets these requirements with major courses. Milestones are courses and special requirements necessary for timely progress to complete a major. Missing milestones will result in one of two types of map registration stops. The first level (*Degree Map Offtrack*) is placed following grade posting if the student has missed a milestone (course and/or GPA) for the first time in the major. If a student is in non-compliance with milestones for two (2) consecutive semesters (excluding summers), a *Major Change Required* stop is placed on the student's registration.

The FSUTeach/Mathematics major is designed for students who wish to teach Mathematics at the middle and/or secondary education levels. Students are strongly encouraged to have credit for College Algebra (MAC1105) prior to enrolling as freshman in the FSUTeach/Mathematics major. This degree should not be used by someone planning to do graduate work in mathematics.

In order to be admitted for the second major in Education, students must have an overall 2.5 gpa, and satisfy the teacher education admission requirements noted here:

<http://www.coe.fsu.edu/Admissions-Scholarships/Undergraduate-Admissions/Teacher-Education-Admissions-Requirements>

(Please note: FSUTeach majors are not required to take EDF1005, EDF2085, or EME2040)

Mapping Coordinator: Shellie Camp E-mail: scamp@fsu.edu

Sample Schedule		Milestones	
Term 1		TERM 1	
ENC1101 or higher English	3	Complete ENC1101	
MAC2311 or higher mathematics	4		
LS History/Humanities/Social Science	3		
COP3014	3		
SMT1043	1		
Total hours	15		
TERM 2		TERM 2	
ENC1102 or other second English	3	Complete ENC1102 or other second English	
MAC2312	4	Meet with department Advisor	

PHY2048C	5
LS History/Humanities/Social Science	3
SMT1053	1
Total hours	16

TERM 3	Hrs.
MAC2313	5
Foreign Language I	4
SMT3100	3
MAT3503	3
Total hours	15

TERM 3
Complete MAC2311

TERM 4	Hrs.
MAP2302	3
Foreign Language II	4
Classroom Interactions	3
MAS3105	3
LS History/Humanities/Social Science	4
Total hours	15

TERM 4
Begin Foreign Language requirement

TERM 5	Hrs.
Foreign Language III	4
STA4321	3
Math Area Elective	3
ISC3523C	3
Liberal Studies Humanities/Fine Arts	2
Total hours	15

TERM 5
SMT3100
Apply for formal admission to School of Teacher Education (minimum overall gpa 2.5 required)
Complete MAC2313
Complete COP3014 or ISC3313
General Knowledge FTCE
MAT3503

TERM 6	Hrs.
Math Area Elective	3
Math Elective	3
Liberal Studies	3
HIS3505	3
TSL4324	3
Total hours	15

TERM 6
Complete MAS3105
ISC3523C
Foreign Language I

SUMMER	Hrs.
Liberal Studies	6

Math Area Elective	3
Total hours	9

TERM 7	Hrs.	TERM 7
Math Area Elective	3	SMT4664
SMT4664 (oral)	3	RED4335
RED4335	3	Professional Ed. & Subject Area FTCE
Elective	3	
Elective	3	
Total hours	15	
TERM 8	Hrs.	TERM 8
SMT4945 and SMT4930	6	SMT4945
Total hours	6	Apply for Graduation in 1st two weeks

Employment Information

Representative Job Titles Related to this Major: Middle School/High School Advanced Placement Mathematics Teacher

Representative Employers: Middle Schools and High Schools

International Opportunities

International study is available for all students and may include opportunities for internships or taking course work towards various minors. International study may have an impact on the MAP; therefore, it is important to consult with the academic advisor for this major before participating in an International Programs opportunity. Interested students should also contact the Office of [International Programs](#).

This Map is not a contract, either expressed or implied, between the University and the student, but represents a flexible program of the current curriculum which may be altered from time to time to carry out the academic objectives of the University. The University specifically reserves the right to change, delete or add to any Map at any time within the student's period of study at the University.

PHYSICAL SCIENCE / FSU-TEACH

Colleges:	Arts and Sciences Education	
Degree:	B.S.	
Limited Access:	No	
Contacts:	<u>Physics</u> Melissa Wolff 307 Keen Bldg, FSU Tallahassee, FL 32306-4350 (850) 644-3245 ugrad@physics.fsu.edu	<u>FSU-Teach</u> Dr. Robin R. Smith 209 Carothers Hall, FSU Tallahassee, FL 32306-4482 (850) 645-8927 rrsmith@fsu.edu
Web Page:	http://fsu-teach.fsu.edu/	

Description of Major

FSU-Teach is an innovative approach to teacher education that involves collaboration between scientists, mathematicians, and education faculty at Florida State University. In Physical Science/FSU-Teach, students will develop both knowledge of physics and the knowledge, skill, and experience needed to be an effective science teacher. The program will pay for tuition for the first two Education/Teaching courses. Work study positions with scientists, mathematicians, and local schools are available. For more information, see our Web site, <http://fsu-teach.fsu.edu/>.

This is a double-major only program. FSU-Teach majors are first admitted into their primary, discipline-specific major and must meet the state-wide common program prerequisites for that major, in this case Physical Science/FSU-Teach. Later, students apply for admission into a secondary major within the College of Education called Science Teaching/FSU-Teach. Upon graduation, students are awarded the B.S. degree with majors in Physical Science/FSU-Teach and Science Teaching.

The FSU Physics Department also offers majors in “Physical Science,” “Physics,” and “Physics and Astrophysics.”

Prerequisite Coursework: 0 beyond other requirements.

Students must complete the following prerequisites required for admission in preparation for the upper division major. All of the following may also apply toward major and/or Liberal Studies requirements.

MAC X311 (4) Calculus with Analytic Geometry I
 MAC X312 (4) Calculus with Analytic Geometry II
 MAC X313 (4) Calculus with Analytic Geometry III
 CHM X045, X045L (3,1) General Chemistry I, Lab (or equivalent)
 CHM X046, X046L (3,1) General Chemistry II, Lab
 PHY X048C (5) General Physics A
 PHY X049C (5) General Physics B
 SMT X043 (1) Step 1: Inquiry Approaches to Teaching

SMT X053 (1) Step 2: Inquiry-Based Lesson Design

Note 1: Transfer students will be able to take SMT X043 and SMT X053 when enrolled at FSU.

Note 2: State-wide common prerequisites are always under review. For the most current information and for acceptable alternative courses, visit the “Common Prerequisites Manual.” This is available from the “Student Services” section of <http://www.flvc.org>.

Requirements for graduation in the College of Arts and Sciences include:

The College of Arts and Science requires proficiency in a foreign language through the intermediate (2220 or equivalent) level or sign language through the advanced (2614 or equivalent) level.

Progress in this major and formal admission to FSU-Teach and Teacher Education.

To be recognized as “formally admitted” into this major, students must meet the following requirements: 1) certification to upper division (or transfer admission into Physical Science/FSU-Teach as a junior); 2) completion of Liberal Studies or an AA; 3) satisfactory completion of “Step 1” and “Step 2” courses; 4) a cumulative GPA of at least a 2.5; and 5) a passing score on all four parts of the FTCE General Knowledge Test. Once these are complete, the student must complete an “Undergraduate Application to Teacher Education” in 2301 Stone Building, at which time the second major in Science Teaching will be added.

Departmental Policy on Grades and Continuation in the Major

A student who has received more than five unsatisfactory grades (U, F, D–, D, D+) in courses required for a major offered by the Department of Physics at Florida State University or elsewhere, whether or not repeated, will not be permitted to graduate with a degree in this major.

Mapping

Mapping is FSU’s academic advising and monitoring system. Academic progress is monitored each Fall and Spring semester to ensure that students are on course to earn their degree in a timely fashion. Transfer students must meet mapping guidelines to be accepted into their majors. You may view the map for this major at www.academic-guide.fsu.edu/.

Major Program of Studies at FSU: 79-82 hours

Required courses for the Physical Science/FSU-Teach Major: 50 hours

1. All of the following Physics courses (19 hours)

PHY 2048C (5) General Physics A

PHY 2049C (5) General Physics B

PHY 3091 (2) Communication in Physics (satisfies oral communication requirement)

PHY 3101 (3) Intermediate Modern Physics

PHY 3012 (2) Learning Assistantship in Physics

PHY 3802L (2) Intermediate Laboratory

2. Four of the following five courses (12 hours)

AST 4211 (3) Introduction to Astrophysics

PHY 3045 (3) Physics Problem Solving

PHY 3424 (3) Optics

PHZ 3400 (3) Phenomena in Condensed Matter Physics

PHZ 4390 (3) Particle and Nuclear Physics

3. At least one computer skills competency course selected from the following (3 hours)

COP 3014 (3) Programming I

ISC 3313 (3) Introduction to Scientific Computing

PHZ 4151C (3) Computational Physics Laboratory

Collateral Coursework: 16 hours

Majors must satisfy complete the courses listed below. As collateral courses, these may be used to satisfy Liberal Studies or minor requirements. If not, they must be taken in addition to other requirements.

MAC 2311 (4) Calculus with Analytic Geometry I

MAC 2312 (4) Calculus with Analytic Geometry II

CHM 1045, 1045L (3,1) General Chemistry I, Lab or CHM 1050, 1050L Honors General Chemistry I, Lab

CHM 1046, 1046L (3,1) General Chemistry II, Lab or CHM 1051, 1051L Honors General Chemistry II, Lab

Required courses for the Science Teaching major: 29-32 hours

SMT 1043 (1) Step 1: Inquiry Approaches to Teaching

SMT 1053 (1) Step 2: Inquiry-Based Lesson Design

SMT 3100 (3) Knowing and Learning

SMT 4301 (3) Classroom Interactions

SMT 4664 (3) Project Based Instruction

SMT 4830 (1-4) Apprentice Teaching Seminar

SMT 4945 (5) Apprentice Teaching

HIS 3505 (3) Perspectives on Science and Mathematics

ISC 3523C (3) Research Methods

RED 4335 (3) Content Area Reading for Secondary School Teachers

TSL 4324 (3) ESOL Instruction in the Content Area

Computer Skills Competency: 0 hours beyond other requirements. PHZ 4151C (3), COP 3014 (3), or ISC 3313 (3).

Oral Communication Competency: 0 hours beyond major. PHY 3091 or SMT 4664 will satisfy this requirement.

Minimum Program Requirements Summary

Total Hrs. Required 120

Liberal Studies 36*

Prerequisite Coursework 0 beyond other requirements*

Major Coursework 79-82

Foreign Language 0-12 (depending on placement)

Computer Skills 0 beyond major

Oral Competency 0 beyond major

Electives to bring total hours to 120

*Prerequisite coursework may also be used to satisfy general education and major requirements.

Remarks:

1. A minimum of 45 hours at the 3000 level or above, 30 of which must be taken at this University.
2. Half of the major course semester hours must be completed in residence at this University.
3. The final 30 hours must be completed in residence at this University.
4. Students who plan to earn the B. A. degree must complete both a foreign language through the intermediate (2200 or equivalent) level and nine additional hours in the fields of history and humanities.

Employment Information

Salary Information: [National Association of Colleges and Employers](#), [Occupational Outlook Handbook](#)

Representative Job Titles Related to this Major: Middle school or high school teacher of physics. In addition, students may pursue careers appropriate for students with a major in Physical Science.

Representative Employers: Public and private schools, research facilities, private industry.

Updated: Summer, 2013

PHYSICAL SCIENCE/FSU-Teach MAP (Effective Summer "C" 2013 and after)

This map is a term-by-term sample course schedule. The milestones listed to the right of each term are designed to keep you on course to graduate in four years. The Sample Schedule serves as a general guideline to help you build a full schedule each term. The Liberal Studies and Elective courses must be selected to satisfy all area, literature, lab, Gordon Rule, and multicultural requirements unless your program meets these requirements with major courses. Milestones are courses and special requirements necessary for timely progress to complete a major. Missing milestones will result in one of two types of map registration stops. The first level (*Degree Map Offtrack*) is placed following grade posting if the student has missed a milestone (course and/or GPA) for the first time in the major. If a student is in non-compliance with milestones for two (2) consecutive semesters (excluding summers), *a Major Change Required* stop is placed on the student's registration.

The Physical Science/FSU Teach major is designed for students who wish to teach Physics or other physical sciences at the middle and/or secondary education levels.

In order to be admitted for the second major in Education, students must have an overall 2.5 gpa, and satisfy the teacher education admission requirements noted here:

<http://www.coe.fsu.edu/Admissions-Scholarships/Undergraduate-Admissions/Teacher-Education-Admissions-Requirements>

(Please note: FSU Teach majors are not required to take EDF1005, EDF2085, or EME2040)

Mapping Coordinator: Shellie Camp E-mail: scamp@fsu.edu

Sample Schedule		Milestones			
TERM 1		TERM 1			
ENC1101 or higher English	Hrs. 3	Complete ENC1101			
MAC1114	2				
MAC1140	3				
SMT1043	1				
Liberal Studies/Language	6-7				
Total Hours	15- 16				
TERM 2		TERM 2			
ENC1102 or other second English	Hrs. 3	Complete ENC1102 or other second English			
MAC2311	4			Complete MAC2311	
Liberal Studies/Language	3-4				
SMT1053	1				

Liberal Studies/Language	3-4
Total Hours	14-15

Summer	Hrs.
PHY2048C	5
MAC2312	4
Total Hours	9

TERM 3	Hrs.
PHY2049C	5
SMT3100	3
Liberal Studies/Language	6-7
Total Hours	14-15

TERM 3
Complete PHY2048C

TERM 4	Hrs.
PHY3101	3
CHM1045 w/Lab or CHM1050 w/Lab	4
SMT4301	3
Liberal Studies/Language	3-4
Total Hours	13-14

TERM 4
Complete MAC2312
Complete PHY2049C

TERM 5	Hrs.
PHY3091	2
PHY3424 or PHY3045	3
ISC3523C	3
PHY3012	2
Liberal Studies/Language	3-4
Total hours	13-14

TERM 5
Complete SMT3100
Apply for formal admission to School of Teacher Education (minimum overall gpa 2.5 required)
General Knowledge FTCE
Complete PHY3101

TERM 6	Hrs.
PHZ4390	3
CHM1046 w/Lab or CHM1051 w/Lab	4
HIS3505	3
TSL4324	3
PHZ3400	3
Total hours	16

TERM 6
Complete CHM1045 w/Lab or CHM1050 w/Lab
Complete ISC3523C

TERM 7		Hrs.	TERM 7
AST4211 or PHY 3045	3		Complete a pre-graduation check
SMT4664	3		Complete SMT4664
RED4335	3		Complete CHM1046 w/Lab or CHM1051 w/Lab
PHZ4151C or ISC3313 or COP3014	3		Professional Ed. & Subject Area FTCE
Liberal Studies/Language	3-4		
Total hours	15-16		
TERM 8		Hrs.	TERM 8
SMT4945	5		SMT4945
SMT4930	1-4		SMT4930
Total hours	6-9		Apply for Graduation in 1st two weeks

Employment Information

Representative Job Titles Related to this Major: Physics Teacher at the Middle and/or Secondary education level

Representative Employers: Middle Schools and High Schools

International Opportunities

International study is available for all students and may include opportunities for internships or taking course work towards various minors. International study may have an impact on the MAP; therefore, it is important to consult with the academic advisor for this major before participating in an International Programs opportunity. Interested students should also contact the Office of [International Programs](#).

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FSU-Teach Course of Study

Step 1: Inquiry Approaches to Teaching

Step 1 invites students to explore teaching as a career at no cost. In Step 1, students teach science or math lessons in elementary classrooms to obtain firsthand experience with planning and implementing inquiry-based curriculum. Master teachers teach Step 1, so students have direct access to people who love teaching and who believe that teaching is a rewarding career choice. A low-socioeconomic-status elementary classroom provides the future teachers with a first taste of teaching in a supportive, diverse environment.

An introduction to the theory and practice necessary to design and deliver excellent inquiry-based science and mathematics instruction provides the scaffold for the early field experience. The FSU-Teach instructor or master teacher and the elementary school mentor teacher emphasize both inquiry and classroom management techniques.

Course Objectives: Step 1

Students Will Be Able To:	Evidence (Student Products)
Utilize content knowledge to plan and teach three upper elementary grade lessons	A paragraph in each lesson plan that provides background information on the concepts presented Content accuracy throughout a lesson plan Observations by the mentor teacher and the master teacher
Utilize exemplary sources of inquiry-based science and mathematics lessons	Participation in model lessons presented in class Sources of lessons cited in each lesson plan
Write performance objectives and assessments of those objectives for each lesson	Performance objectives and corresponding assessments included in each lesson plan
Design and teach three inquiry-based lesson plans using the 5E model	Three inquiry-based lesson plans Written feedback by the mentor teacher for three inquiry-based lessons Written feedback by a master teacher for at least one inquiry-based lesson
Determine personality and learning styles using survey instruments such as the Keirsey Temperament Sorter and Gardner's Multiple Intelligences and discuss the implications for teaching and learning	Completion and analysis of survey instruments Participation in class discussions on the implications of personality and learning styles for teaching and learning

Use probing questions to elicit feedback to determine students' acquisition of knowledge	Participation in class discussions on questioning strategies Extensive examples of possible questions and expected responses listed in each lesson plan Written feedback for every lesson from the mentor teacher
Implement safe classroom practices	Safety issues addressed in each lesson plan Observations by the mentor teacher and master teacher
Assess commitment to pursue teaching as a career path	Participation in a class discussion on intentions to pursue teaching as a career path

Step 2: Inquiry-Based Lesson Design

In Step 2 students who want to explore teaching careers become familiar with the middle school environment by observing and discussing middle school culture and by teaching several lessons to a middle school class. They build on and practice lesson design skills developed in Step 1 and also become familiar with excellent science or mathematics curricula for the middle school setting. A significant number of FSU-Teach students enjoy their teaching experiences in middle schools to the extent that they decide to pursue teaching in the middle grades. As a result of the Step 2 experiences, students generally are able to make a decision about whether they want to pursue a pathway to teacher certification through the FSU-Teach program.

The Step 2 course emphasizes writing good 5E lesson plans, with a focus on the importance of using appropriate questioning strategies throughout the lesson. Students develop pre- and post-assessments for performance objectives. For their final product, students analyze and modify one of the lessons they taught, taking into account the results of the assessments, their reflection on how successful the lesson was, and feedback from their mentor teachers and the course instructor who observed the lesson.

Course Objectives: Step 2

Students Will Be Able To:	Evidence (Student Products)
Use content knowledge to plan and teach three middle school lessons	One paragraph in each lesson plan that provides background information on the concepts presented Content accuracy throughout the lesson plan Observations by the mentor teachers and the master teacher
Use exemplary sources of inquiry-based science and mathematics lessons	Participation in model lessons presented in class Sources of lessons cited in each lesson plan
Experience teaching adolescents to understand their unique attributes and implement teaching strategies that are effective in the middle school environment	One paragraph in each lesson plan that indicates why the instructional strategies are effective for adolescents Participation in a class session that addresses attributes of adolescents Observations by the mentor teachers and master teacher who observe lessons
Design and teach three inquiry-based lesson plans using safe practices and the 5E model	Three inquiry-based lesson plans with the 5E template that includes safety recommendations Written feedback by the mentor teacher for three inquiry-based lessons taught in a middle school Written feedback by the master teacher for at least one inquiry-based lesson taught in a middle school
Design and teach a lesson that incorporates the use of technology	Participation in technology activities during class A minimum of one lesson plan that incorporates the use of technology Written feedback from the mentor teacher

	indicating that a minimum of one lesson incorporated the use of technology
Use probing questions to elicit feedback on students' acquisition of knowledge	Participation in class discussions on questioning strategies Extensive examples of possible questions and expected responses listed in each lesson plan Written feedback for every lesson from the mentor teacher, indicating the effective use of questioning strategies
Use pre- and post-assessments to evaluate student learning, to provide instructive feedback to middle school students, and as a basis for revising a lesson plan	Analysis of the use of pre- and post-assessments to evaluate student learning Pre- and post-assessments with written comments for instructive feedback for lesson plans. Use of pre- and post-assessments to revise one lesson plan
Provide instructive feedback to peers	Written feedback provided to peers who present their lessons during class
Reflect on teaching experiences to revise lesson plans	Student essays produced after observation and teaching experiences One revised lesson plan submitted as a final project Essay providing rationale for revisions to the lesson plan
Evaluate commitment to pursue teaching as a career path	Survey indicating intention to pursue teaching as a career path

Knowing and Learning in Mathematics and Science

A traditional certification program typically includes, early on, a general-purpose educational psychology course. While similarly placed in the FSU-Teach program, the Knowing and Learning course was developed as a significant alternative to such an all-inclusive, all-things-to-all-people course. Rather than pursue very general claims about knowing and learning across disciplines and ages and rather than being based on only one formal perspective (educational psychology), FSU-Teach's Knowing and Learning course is intended to focus on knowing and learning in secondary mathematics and science as understood from a multidisciplinary perspective. The course stands on the premise that formal research on knowing and learning in mathematics and science has emerged, in itself, as a robust line of inquiry and design. This line of inquiry has tended to be situated relative to classroom practice and draw on significant insights from many fields of inquiry, including psychology, anthropology, critical literacy, sociology, biology, linguistics, neuroscience, philosophy, developmental theory, artificial intelligence, and the domains of mathematics, science, and computer science proper. Some now call this integration of domains a "learning science" perspective.

This course is not simply a general survey of theories of mathematical knowing and learning. Instead, the primary goal of Knowing and Learning is to provide students with the opportunity to identify theories and employ these theories to guide their own practice. FSU-Teach is committed to the idea that practice and theory build on each other. Any teaching practice is guided by some theory of how people learn. If students are not aware of this, they are likely to adopt teaching practices without considering the full implications of theory behind them. FSU-Teach wants its students to be thoughtful and reflective practitioners.

Course Objectives: Knowing and Learning

Students Will Be Able To:	Evidence (Student Products)
Articulate various standards for knowing science and mathematics and articulate the implications of these standards for assessment, especially standardized assessment	Meaningful contributions to class discussions Comments posted about analysis of readings Analysis of clinical interviews Written examinations
Describe how knowing and learning are structured and how what people know changes and develops	Meaningful contributions to class discussions Comments posted about analysis of readings Analysis of clinical interviews Written examinations
Describe various paradigms for evaluating science and mathematics understanding	Meaningful contributions to class discussions Comments posted about analysis of readings Written examinations
Describe the links between knowing and developing in learning theory and the content and evolution of scientific ideas	Meaningful contributions to class discussions Comments posted about analysis of readings Analysis of clinical interviews Written examinations
Complete three mini clinical	Report including transcription and analysis of

interviews with an expert/novice pairing on a topic	clinical interviews Rubric given to students before clinical interview to clarify what will be assessed
Express informed opinions on current issues and tensions in education, especially as they relate to mathematics and science instruction	Meaningful contributions to class discussions Comments posted about analysis of readings Analysis of clinical interviews Written examinations

Functions and Modeling

Functions and Modeling is a requirement for math majors in the UTeach program. In this exploration of secondary mathematics concepts, prospective mathematics teachers are expected to do the following:

- Deepen and broaden function-related mathematical content knowledge from algebra through calculus
- Make connections between college mathematics and secondary school mathematics
- Build preliminary knowledge of professional and state mathematics curriculum standards
- Use reflective and collaborative learning and develop a stronger sense of professionalism and leadership
- Become efficient seekers and presenters of mathematics content knowledge and history
- Explore and learn appropriate use of technology in the mathematics classroom

A point is made to cover content that is traditionally glossed over by secondary teachers but is essential to preparing students for university mathematics courses. This slighted content includes parametric and polar objectives, linear and matrix algebra, regression aspects of statistics, and growth and decay exponential models.

Course Objectives: Functions and Modeling

Students Will Be Able To:	Evidence (Student Products)
Deepen and broaden function-related mathematical content knowledge	Classroom activities Assessments Discussions
Generate relevant data and use regression, matrix, function pattern, and systems methods to model the data	Classroom activities Classroom labs
Present mathematics ideas and topics in a knowledgeable and effective manner	Classroom presentations of findings Discussions
Explore and learn appropriate use of technology in the mathematics classroom	Classroom activities Classroom labs Assessments Discussions
Identify connections between the various levels of secondary mathematics curriculum and between secondary and university level curriculum	Classroom activities Discussions

Classroom Interactions

The Classroom Interactions course continues the process of preparing students to teach mathematics and science in upper elementary and secondary settings. The specific objectives of this course are to:

- Demonstrate to students how learning theories (from the Knowing and Learning course) manifest themselves in instructional settings (usually classrooms), allow students to design and implement instructional activities from their own understanding of knowing and learning mathematics and science, and evaluate the outcomes of those activities based on evidence from student artifacts
- Provide students with frameworks for thinking about equity issues in the classroom and larger school settings and their effects on learning and provide students with strategies for teaching diverse students equitably

Classroom Interactions begins with the assumption that students have conducted and analyzed a number of clinical interviews in science and mathematics as part of Knowing and Learning. Students must understand that the process of concept acquisition must encompass learners' prior formal and informal knowledge, the importance of task construction in eliciting student thinking, and the critical role of reflection and language in the construction of knowledge. Whereas in Knowing and Learning, students study the meaning behind understanding a particular content area from an individual perspective, in Classroom Interactions, the perspective shifts to studying how classroom events might promote or discourage learning mathematics and science and student equity.

In Classroom Interactions, students typically participate in several learning activities and consider how the activities reveal and change their own understanding before implementing similar activities in high school classrooms. These activities allow students to evaluate their own learning and understanding of a subject. Bringing together students from different disciplines (for example, science, math, and computer science) allows them to see their subjects from the perspective of a novice and to consider how different perspectives might affect the same curriculum. Participating in learning activities also allows students to consider equity issues. For example, is it fair for only the fastest students to contribute to an activity? How would learning be different if all students were not only allowed but required to participate? Is it fair that some students are learning in a language that is not their first? The class considers the implications of deficit thinking (for example, blaming the student) in classroom outcomes.

The culminating activities of the course are the opportunities for students to teach in a high school and to learn whether they enjoy and are good at it. A major component of the Classroom Interactions course is the opportunity for students to reflect on and evaluate their own work as teachers.

Course Objectives: Classroom Interactions

Students Will Be Able To:	Evidence (Student Products)
Compare models of teaching and use various models of teaching, including direct instruction, inquiry, and cooperative groups, as appropriate, to design three high school lessons	Written justification of lesson plans Participation in discussions evaluating teaching Use of various models (both in class and during field teaching) Observations by mentor teacher and class instructor
Plan (with a partner or partners) multiple-day lesson plans on assigned subjects in high school math and science	Lesson plans, including essays justifying the plans and responses to reviewer comments Peer and instructor evaluations of practice teaching in the Classroom Interactions class Completion of appropriate sections of the preliminary portfolio
Teach (with a partner or partners) multiple-day lessons in high school math or science classes	Videotapes of teaching Observer (i.e., classroom teacher, Classroom Interactions instructor, Classroom Interactions teaching assistants, and master teachers) comments on teaching
Analyze their own and others' teaching in terms of how the instruction develops the content understanding of the students involved	Written analyses of teaching with video samples and other student artifacts Presentation and discussion of video samples and other student artifacts in the Classroom Interactions class Development of a knowledge map for assigned lessons in high school math and science classrooms Completion of appropriate sections of the preliminary portfolio
Analyze their own and others' ability to address equity issues in their teaching (e.g., effects of instruction on all students, including those learning in a second language, those with disabilities, those from minority cultures)	Written analyses of teaching with video samples and other student artifacts with regard to equity issues Presentation and discussion of video samples and artifacts of teaching Completion of appropriate sections of the preliminary portfolio
Become familiar with policies and classroom strategies regarding students of all kinds, in particular the Texas Essential Knowledge and Skills and	Participation in discussion and Internet postings regarding policies concerning students who have diverse needs

national science and math standards	
Read selected articles documenting theory and research regarding classroom interactions and broader educational policies and their effects on content understanding and equity for all students	Participation in discussions of readings Posting of commentaries on the Internet Written analyses of readings
Become familiar with relevant types of teaching technology and analyze how technology can affect classroom interactions	Artifacts produced by the use of such technology in the Classroom Interactions classroom Participation in discussions of the effectiveness of technology Written analyses of the uses of technology Completion of appropriate sections of the preliminary portfolio

Project-Based Instruction

Project-Based Instruction (PBI) is the capstone course in the sequence of required education courses and is required before UTeach students take Apprentice Teaching. PBI is the course in which the major themes of the UTeach program—integrated content of mathematics and science learning, infusion of technology in representation, analysis, modeling, assessment and contextualization of the content, field-based experiences, and equity—converge into an exciting and intellectually challenging culminating experience. When students complete PBI, they are fully prepared for Apprentice Teaching.

Whereas in Classroom Interactions, students gain experience designing a sequence of several lessons that they teach to a high school class, in PBI, students design full units of connected lessons—a skill that is required in Apprentice Teaching. PBI also provides students with the experience of managing lessons and students outside a classroom, in a field setting.

Despite its name, PBI emphasizes choosing from a variety of appropriate teaching styles, depending on the type of material and the learning objectives, with project-based instruction being just one possible alternative. In addition, PBI requires students to incorporate various technologies into the units they plan.

Course Objectives: Project-Based Instruction

Students Will Be Able To:	Evidence (Student Products)
Discuss the importance of project-based instruction in terms of students' cognitive development, equity, and motivation	A project-based unit that includes a rationale and objectives A grant proposal to implement a project-based unit that includes a rationale and potential impact
Reflect on applications of educational theory as it relates to classroom practice in the area of inquiry-based instruction	Online discussions A grant proposal to implement an inquiry-based unit that includes a rationale and potential impact
Distinguish among project-based and other instructional approaches and decide which approach best fits instructional goals based on the benefits and limitations of each	Online discussions A project-based unit that includes benchmark lessons and an appropriate lesson sequence based on the best fit of different instructional approaches
Evaluate the usefulness of technology (e.g., concept mapping software, video editing software, the Internet, simulations) in achieving learning objectives and select appropriate resources for student use, based on the relationship of salient features of the technology to learning objectives	An annotated list of relevant resources and technological tools for a project-based unit Classroom presentation utilizing technology tools
Compare and contrast observations of	Online discussions of class readings and

“real” project-based classrooms with those presented in readings and with theoretical models	field observations of project-based classes
Critically analyze a lesson that they have taught and revise and re-teach it	Mini-lesson study that includes lesson plans, videotapes of the two lessons, reflections on what was planned, how the lesson went each time it was taught, and the rationale for the changes
Demonstrate skill in setting up and managing wet lab and field project-based environments	Assessment of videotape showing the student setting up and managing wet lab and field project-based environments
Work collaboratively to design a four- to six-week project-based unit for secondary math and/or science courses	A project-based unit consisting of a calendar, a rationale, objectives, a theoretical basis for the project, a concept map, benchmark lessons, investigations, alternative assessment strategies, related resources, and technological tools
For science students, read and discuss the Texas Safety Standards Manual (e.g., material safety data sheets, OSHA regulations, how to dispose of chemicals safely)	Participation in class discussion on safety and liability issues A project-based unit that includes safety precautions

Perspectives on Science and Mathematics

Many math and science students are surprised to learn that math and science *have* a history at all; so far as they know, math and science have simply been handed down in textbooks. To discover that science has been accomplished by different kinds of people, for different kinds of reasons, in different kinds of places, can be truly mind-boggling, and, for many students, illuminating. Science is not just a matter of finding out the predetermined right answer! While some students are irked or even frightened by this discovery, others find it liberating.

Perspectives has several interlocking purposes:

- It is intended to help future math and science teachers learn how to think about math and science “from the outside”—to ask questions about what scientists and mathematicians do and why, about where science and technology came from and how they got to be so important in the world today, and about what kinds of questions scientists and mathematicians have tried to answer and why.
- It is designed to teach students skills of the liberal arts, including sophisticated research and information analysis, fluent writing, and substantive argument.
- It requires students to put to work all the perspectives and skills they have learned in science and math pedagogy.

Four common elements show up in Perspectives: thinking about science and math “from the outside,” improving students’ writing skills, improving students’ research skills, and incorporating history and/or philosophy of science and math into pedagogy.

Course Objectives: Perspectives

Students Will Be Able To:	Evidence (Student Products)
Develop an overview of the development of modern science and mathematics from the seventeenth through the twentieth centuries	Two quizzes on historical material Weekly writing assignment responding to an issue or question raised Two historical papers requiring research and analysis Participation in class and weekly section discussions
Examine the underpinnings of modern science and mathematics by analyzing the contributions of key individuals, including Newton and Darwin	Two quizzes on historical material Participation in class and weekly section discussions Weekly writing assignment responding to an issue or question raised Two research papers on aspects of the development of science and math
Express ideas and opinions clearly and effectively using a formal writing style	Weekly writing assignment responding to an issue or question raised 1,700-word research paper 3,500-word research paper

<p>Develop skills in searching for, retrieving, and evaluating the provenance and reliability of source materials, including specific resources available to teachers</p>	<p>One research-skills quiz Annotated bibliographies for two historical papers Research skills workshop with university librarian</p>
<p>Integrate approaches and material learned in the course with independent research and science or math content to design middle and high school science and math lessons</p>	<p>One 5E lesson plan designed for middle or high school students that addresses standards and integrates approaches and material learned in the course with independent research and science or math content 5E lesson taught to peers Feedback on 5E lessons provided by peers</p>

Research Methods

Most scientists agree that learning about science has two aspects: learning material that has already been established (for example, the structure of DNA, how to find forces on blocks being pushed up a ramp, the definition of an acid) and learning how scientists gained this knowledge (for example, how new discoveries gain authority and are adopted by the scientific community, how to evaluate scientific claims when they conflict, how to design and carry out investigations to answer new questions). Most high school and college science courses are mainly devoted to presenting the first type of knowledge. Education in the second aspect of science has traditionally been left mainly to graduate school. UTeach believes it should become part of high school and college curricula as well because this second aspect of science is the most important in the long run for most citizens to know. Research Methods simultaneously provides students specific techniques needed to address scientific questions and an example of how to provide this sort of training for students through individualized instruction.

The purpose of this course is to present UTeach students with the tools scientists use to solve scientific problems. These tools enable scientists to develop new knowledge and insights, the most important of which are eventually presented in textbooks and taught in conventional science classes. These tools include use of experiments to answer scientific questions, design of experiments to reduce systematic and random errors, use of statistics to interpret experimental results and deal with sampling errors, mathematical modeling of scientific phenomena, and oral presentation of scientific work.

Research Methods is primarily a laboratory course, and most of the topics covered are developed in connection with four independent inquiries UTeach students design and carry out. It is also a substantial writing component class, and the written inquiries students produce are evaluated as examples of scientific writing.

Course Objectives: Research Methods

Students Will Be Able To:	Evidence (Student Products)
Use experiments to answer scientific questions	Four papers on four separate independent inquiries, designed and carried out by the student: (1) brief home inquiry, (2) laboratory inquiry using high school equipment, (3) survey involving human subjects, and (4) extended laboratory inquiry
Design experiments to reduce systematic and random errors	Papers on inquiries 2, 3, and 4 Proposals for inquiries 2 and 4
Use statistics to interpret experimental results and deal with sampling errors	Two homework assignments Two brief in-class papers Class performance Write-ups for inquiries 2, 3, and 4
Use probes and computers to gather and analyze data	Instructor observations during inquiry 2 or 4 or both

Ethically treat human subjects	Certificate demonstrating completion of human subjects training Satisfactory completion of inquiry 3, which involves human subjects
Apply safe laboratory procedures	Instructor observations during inquiries 2 and 4
Find and read articles in the current scientific literature	Two homework assignments Performance assessment during debate
Model scientific phenomena mathematically (Expectations depend upon mathematical skills of student and are greatest for math majors.)	Two homework assignments Personalized modeling assignments as part of inquiries 2 and 4
Apply scientific arguments in matters of social importance	Debates carried out in class in teams at end of semester
Write scientific papers	Four written inquiries, with inquiries 2 and 4 involving at least two drafts
Review scientific papers	Student evaluations of each other, in pairs
Oral presentation of scientific work	In-class oral reports on inquiries 2 and 4 Debate presentation

Apprentice Teaching

An underlying philosophy of the FSU-Teach program is that with extensive, individualized, and ongoing coaching, preservice teachers' skills will improve at an accelerated rate. The FSU-Teach Apprentice Teaching program is an important part of this coaching. In addition to the mentoring provided by the classroom teacher to which the apprentice teachers are assigned, trained observers with considerable teaching experience observe and provide extensive feedback a minimum of 10 times during the semester. All observations of an apprentice teacher throughout the semester focus on parts the Florida Educator Accomplished Practices

Because apprentice teachers have taught at various levels in previous FSU-Teach courses, they assume teaching responsibilities quickly in Apprentice Teaching, which is their final teaching semester, and maintain their role as teacher for the equivalent of two six-week grading periods. Furthermore, each required weekly seminar on campus focuses on two of the state standards for new teachers. Apprentice teachers concentrate on teaching lessons each week in which they demonstrate competency of the particular state standards.

The purpose of Apprentice Teaching is to offer FSU-Teach students a culminating experience that provides them with the tools needed for their first teaching jobs. In Apprentice Teaching, students are immersed in the expectations, processes, and rewards of teaching. When making placements, UTeach staff consider each apprentice teacher's characteristics and abilities as well as the cooperating teacher's teaching and mentoring styles. The hope is that the complementary strengths of the UTeach apprentice teacher and cooperating teacher will generate a synergism that benefits both people professionally.

Apprentice Teaching reinforces and augments teaching strategies that students have developed through their coursework and field experiences. The program also attempts to fill in any gaps in students' professional development. In particular, Apprentice Teaching focuses on classroom management and time management strategies, parent/teacher communication strategies, school culture and school dynamics that make up an effective middle school and high school system, legal and logistical issues in teaching, the final portfolio, and state certification examinations.

FSU-Teach apprentice teachers explore professional development opportunities beyond the classroom, including attending conferences, subscribing to education journals, joining professional organizations, and conducting presentations in educational settings. The goal of Apprentice Teaching is to provide the experiences, information, and coaching that will enable these students to be successful teachers who are leaders in their schools and communities.

Course Objectives: Apprentice Teaching

Students Will Be Able To:	Evidence (Student Products)
Design instruction appropriate for all students that reflects an understanding of relevant content and is based on continuous and	Weekly lesson plans and daily agendas Sample assessments and student artifacts Videotapes of teaching Completion of appropriate sections of the final

appropriate assessments	portfolio Observer written feedback on teaching from the cooperating teacher, the university facilitator, and university instructors Appropriate evaluations
Create a classroom environment of respect and rapport that fosters a positive climate for learning, equity, and excellence	Written classroom rules and procedures Videotapes of teaching Completion of appropriate sections of the final portfolio Observer written feedback on teaching from the cooperating teacher, the university facilitator, and university instructors Appropriate evaluations
Promote student learning by providing responsive instruction that makes use of effective communication techniques, instructional strategies that actively engage students in the learning process, and timely high-quality feedback	Weekly lesson plans and daily agendas Student work containing apprentice teacher written feedback Videotapes of teaching Completion of appropriate sections of the final portfolio Observer written feedback on teaching from the cooperating teacher, the university facilitator, and university instructors Appropriate evaluations
Fulfill professional roles and responsibilities and adhere to legal and ethical requirements of the profession.	Participation in campus professional development days Reflection submission on the Code of Ethics and Standards Practices for Texas Educators Submission of artifacts associated with parent/teacher contacts Completion of appropriate sections of the final portfolio