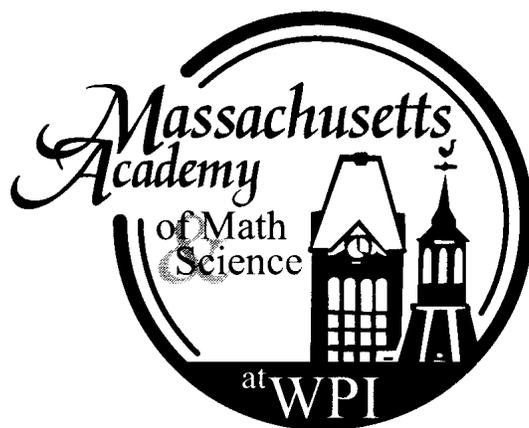


*MASSACHUSETTS ACADEMY
OF
MATHEMATICS AND SCIENCE*



*SENIOR INDEPENDENT STUDY
PROJECT
2020 - 2021*

Senior Independent Study Project Description

The Senior Independent Study Project (SISP) is a 100-hour project which provides an opportunity to acquire knowledge that is *new to the student* outside of the traditional classroom-based curriculum. The SISP also provides an occasion for students to improve their life-long learning skills. Overall, the SISP provides Academy students further opportunity to practice critical thinking and problem solving in an independent learning situation.

Students may choose one of three pathways to meet the requirements of their SISP:

1. Investigating a new area of special interest. Under the supervision of an Academy Senior Advisor and with the assistance of a qualified mentor, students can explore and experience new learning. Successful projects of this type have included art, dance, music and writing projects, as well as physical training, new language acquisition, theatre directing, and EMT training. The project must have demonstrable goals and learning outcomes, must prove new learning, and must be challenging in nature. Proposals for such SISPs require students to identify and consult with a qualified mentor, or enroll in a class or take lessons. *If the SISP involves significant physical activity, then up to 30 hours of the SISP can count toward fulfilling the PE requirement for Mass Academy.*
2. Participating in new research. This involves an extension of a student's research project, or internship in a laboratory. The expected outcome after the 100 hours would be one or more of the following: publication of research in a professional journal; research being entered into a competition; a public presentation that includes a review or judging.
3. Planning and executing a service learning project. Service learning is more project-based and involves study and design phases an implementation phase, and an evaluation phase. Service learning usually begins by studying a community need in order to identify a worthwhile project. The goal of service learning is to understand the social problem that creates the situation and how to successfully implement a solution. One example could be creating a traveling science show program (including the designing of lessons) and bringing it to local middle and elementary schools. This SISP could be a team project.

Although SISP hours do not normally count toward Community Service hours, a service learning SISP project would also be approved as partially contributing towards a student's community service hours. In such a case, the combined hour requirement of SISP/Community Service would be a total 150 hours for senior year.

Each student must present the results of such learning to the Academy community during April of senior year. The SISP is a required and graded course at the Academy that is recorded on students' transcripts.

Timelines / Deliverables

The following checkpoints and products are designed to aid students in developing, undertaking, and completing their SISPs.

1. By the end of junior year, students must submit a one-page, printed narrative SISP Proposal to their Senior Advisors (see below for proposal guidelines). The student's Advisor will review the proposal, discuss it with other faculty for their feedback, request revisions (if necessary), and - upon receipt of any acceptable modifications - approve the project.
2. Prior to commencing work on the project and no later than the second **senior advisory meeting of senior year**, students must submit Timelines for their SISPs to their Advisors. These will be used to determine the feasibility of completing the projects.
3. During the duration of the project, each student must complete two Checkpoint Forms [1]: the first after approximately 33 hours, and the second after approximately 66 hours.
4. Before the first Checkpoint, each student must submit an Assistance Agreement (Mentor) Form which will show that the student has secured the help of one or more qualified mentors.
5. On SISP Presentation Day in April, all seniors will present their projects to Mass Academy juniors and faculty.
6. By the Tuesday prior to graduation, seniors must submit their SISP Final Presentations and Documentation Binders (which include journal entries of work accomplished) to their Senior Advisors.

Requirements for Successful Completion of a SISP

- An approved Project Proposal *
- A Timeline for the work to be accomplished throughout the year *
- A signed Assistance Agreement (Mentor) Form *
- Two completed Checkpoint Forms *
- A Project Presentation including reflection
- A Documentation Binder*

(* These documents must be submitted to your Senior Advisor by the required dates.)

Guidelines for SISP Proposals

A Senior Project Proposal addresses the following questions:

- *Focus.* What is your special interest?
- *Intent.* What is the new knowledge, attitude, and/or skills that you expect to gain from the project? Why will these make it an interesting and worthwhile project for you to undertake?
- *Prior Knowledge.* What knowledge, habit of mind, skill, and need do you bring to this project?
- *Methods of Inquiry.* How will you investigate your special interest and make good on your intent? Who will you ask to help you, either through advice, observation or apprenticeship? What specific resources will be needed? What challenges do you expect?
- *Evidence of Learning.* What will be your evidence of success or change? You will be graded on the quality of the final product, your ability to clearly demonstrate your acquisition of new knowledge, and your depth of understanding of this new knowledge. Your Senior Advisor will determine the project grade after the final deadline.

Sample Student SISP Proposal

Focus. Firefighting

Intent. Intent to become a volunteer firefighter. Firefighting is not only about putting out fires. The training involved in becoming a firefighter includes emergency medical training, open water rescue, automotive accident response, and fire prevention. The fire department provides the opportunity for positive interaction with the community. The company visits schools in the local towns and offers workshops for citizens.

Prior Knowledge. My years in Boy Scouts have given me some background skills in basic first aid, CPR, and knot tying. I have also held leadership positions, and learned teamwork, both of which are essential in firefighting.

Methods of Inquiry. I already know a fair amount about being a volunteer firefighter, since my father was a volunteer firefighter for many years. I have already visited my town's fire department website and have scheduled an appointment with our fire chief to gather more information.

Evidence of Learning. All recruit firefighters are required to attend the Massachusetts Fire District 7 Recruit Training program, which I will enroll in. The program consists of all aspects of basic firefighting. It culminates with Massachusetts Fire Training Council Firefighter I/II certification. The remaining portion of the year will be attending training sessions with the local department, and answering calls.

Assistance / Mentor Procedure

One of the requirements of your SISP Project is to obtain assistance from a qualified person in your area of interest. The forms on the following pages are for your use when you make the initial contact with a potential mentor.

When you request assistance from a mentor, bring the following:

- A Letter of Introduction
- Your Project Proposal, and
- An Assistance Agreement Form

Ask the person to read the Letter of Introduction and your Proposal and then ask them to sign a copy of the Agreement Form.

You will need to follow this procedure for each person who assists you in a significant way, so make several copies of the Agreement Form. It is your responsibility to keep the signed Agreement Forms in your Documentation Binder.



Letter of Introduction

Senior Independent Study Project

The purpose of the SISP (Senior Independent Study Project) is to provide opportunities for Mass Academy students to learn from experiences that usually do not take place in the traditional school curriculum. To do this, students choose topics or activities that greatly interest them, develop a proposal with help from an Academy teacher, and then develop a plan to achieve their stated goals and objectives over the course of the school year. As part of the learning, students must seek advice and help from individuals who are knowledgeable and experienced in the chosen area of interest. The final result, whether written, built, demonstrated, or performed, showcases what new knowledge the students have gained and how it was acquired. Regardless of content, it is expected that the students SISP experience will enhance life-long learning skills. The SISP is required for graduation.

In the past, projects have ranged from artistic creations to work-internships, EMT training, preparation for the Boston marathon, computer animation, acquiring a new language, and ballroom dance. Expert advisers like you have made key contributions by providing advice, giving contacts, making available space in labs, studios, or workshops, demonstrating techniques and skills, and giving valuable feedback on written summaries or performances. Many advisors have noted that they have enjoyed participating in these projects as much as the students! To help you determine whether you are willing and able to become a mentor for this project, a copy of the student's proposal will be provided for your perusal. If you would like further information about the project or the Academy in general, please do not hesitate to call me at 508-831-5859.

I appreciate your willingness to discuss this project with our student and hope that you may be able to help. We appreciate the supportive community that enables our students to thrive.

Sincerely,

Michael Barney
Director
Mass Academy of Math and Science

Assistance Agreement / Mentor Form



I have read the Letter of Introduction and the Project Proposal, and I agree to mentor
_____ with their Senior Independent Study Project.
student's name

signature

printed name

phone number/email

date

Goal Setting/ Planning Your SISP

Have a process for planning your project. Be S.M.A.R.T. Write down your steps and track your progress. Talk to your Advisor and your mentor. Ask for help if you get stuck. Don't procrastinate, and make steady progress throughout your SISP.

S = Specific. When setting a goal, be specific about what you want to accomplish.

M= Measurable. What metrics are you going to use to determine if you meet the goal? This makes a goal more tangible because it provides a way to measure progress. If it's a project that's going to take a few months to complete, then set some milestones by considering specific tasks to accomplish.

A= Achievable. This focuses on how important a goal is to you and what you can do to make it attainable and may require developing new skills and changing attitudes. The goal is meant to inspire motivation, not discouragement. Think about how to accomplish the goal and if you have the tools/skills needed. If you don't currently possess those tools/skills, consider what it would take to attain them.

R= Relevant. Relevance refers focusing on something that makes sense with the broader goals. For example, if the goal is to launch a new website, it should be something that's in alignment with the overall project objectives, not ancillary material that doesn't support what you are trying to accomplish.

T = Time-bound. Anyone can set goals, but if they lack realistic timing, chances are you're not going to succeed. Providing a target date for deliverables is imperative. Ask specific questions about the goal deadline and what can be accomplished within that time period. If the goal will take three months to complete, it's useful to define what should be achieved half-way through the process. Providing time constraints also creates a sense of urgency.

Genuine new knowledge requires an on-going process of revision and re-evaluation. You must continually go back to previous steps to incorporate new information and results. This process is a loop which cycles back on itself and requires you to use each step a number of times, not necessarily in any particular order, to come to your final conclusions.

Your final presentation will examine the entire process of your project, including a reflection. Keep in mind the following guideposts for this learning experience:

- What have you discovered about your ability to plan?
- How have you learned to use resources and solve problems?
- How do you intend to use the knowledge and skills you have gained?
- What have you discovered about your own thinking?
- Would you recommend this to someone else?
- How did you grow throughout this process

Gather evidence over the course of the project (pictures, videos, recordings, artifacts) to enhance your final presentation.

Presentation Expectations

Your final presentation is an opportunity for you to reflect upon the work you have accomplished on your SISP. It should include the following:

- A Powerpoint with a minimum of 5 slides, including pictures and /or videos to include.
- A summary of what you did and why you did it.
- A description of what you learned. Did you learn as much, more, or less than you planned? Why?
- Any obstacles you faced during your project and how you overcame them.
- How well you did with time management.
- Whether you will continue with this project in some way.
- How will you will use the knowledge and experience that you have acquired.
- A reflection of what you learned through your SISP experience.

Presentation Scoring Rubric

Scoring Key

3	<i>Exceeds expectations</i>
2	<i>Meets expectations</i>
1	<i>Fails to meet expectations</i>
0	<i>Not Done</i>

Mechanics of Presentation

_____The speaker utilized effective mechanics of presentation through vocal variety, emphasis of key points, clarity of speech, humor, eye contact, pace, and rhythm.

Knowledge of Content

_____The speaker demonstrated mastery of content of his/her material/subject.

_____The speaker answered questions from the audience in an informed and confident manner.

Support Materials

_____The speaker's appropriate use of supporting materials enhance the project/presentation and are effectively referenced and utilized.

_____The speaker's supporting materials meet high standards of excellence (craftsmanship, design, and creativity).

Time Management

_____The speaker utilized his/her time effectively.

Professionalism

_____The speaker displayed an appropriate tone and professional style of dress.

SISP Grade

You will be graded on the quality of the final product, your ability to clearly demonstrate your acquisition of new knowledge, and your depth of understanding of this new knowledge. Your Senior Advisor will determine the project grade after the final deadline date, which is the Tuesday before graduation.

The SISP project is graded as "P" or "NR" and is recorded on your final transcript. Successful completion of the SISP is a graduation requirement for Mass Academy.

REFERENCES

[1] Checkpoint form

<https://cpb-usw2.wpmucdn.com/wp.wpi.edu/dist/2/277/files/2018/08/SISP33HrCheckpointForm-1urb57h.pdf>