

# YHS Science Research Program

Name \_\_\_\_\_

## Class Rules for 1<sup>st</sup> year research students:

- A. You must be in class, on time, each day of the week, and stay for the full class period.
- B. You must meet with us once every 2 weeks.  
*Mandatory – 4 meetings per quarter. This is 80% of your grade and the most important part of the class. Meetings will take place during a free period or before school.*
- C. Your grade is based on your 4-5 biweekly meetings (approx. 80%) and all of the in-class activities/homework assignments (approx. 20%) (1<sup>st</sup> quarter also includes the summer work)
- D. You must be on time for your meeting and fully prepared.**
- If you are late for your meeting and do not have a pass – you will lose points
  - If you miss your meeting, without previous permission, you will lose 10 points off of that meeting grade.
  - It is your responsibility to know when your meetings are so check the schedule often
  - If for any reason you or the teacher you are meeting with is not in school on your meeting day then we will reschedule within the next 2 days.
- E. What is checked at Biweekly meetings ? (all must be filled out before)**
1. Goal sheet from previous meeting, *(filled out appropriately)*
  2. Research Binder updated since the previous meeting including your new information and articles.
  3. Articles *(underlining or highlighting required)*, including bulleted notes, vocabulary defined, summarizing sheet for each article. In addition – you must be able to explain each article in simple terms.
  4. Upcoming presentation work. Bring your work in on a usb drive or email it so we can review it.
  5. Printed version of describing time spent with your student mentor. Student mentors will be assigned during the first week of school.
  6. Printed version of spreadsheet/time chart displaying hours spent on research related activities.  
(Date, Time, Time spent, Location, Brief description of activity)
- F. There is to be no game playing on the research room computers during the normal school day.

## Ideas & Suggestions:

- G. You will get a lot of extra points for attending any lectures within your field of study. Please let us know about your interest in attending a workshop or lecture before you do so, In order to gain the extra points you will have to fill out an info sheet and turn it in at your meeting.
- H. Create a new, professional looking email address to use for all scientist/mentor contact  
ex. HillaryScott@gmail.com or KChesney@aol.com
- I. Start keeping a computerized page (or log) of all email addresses, names, affiliations as well as cool websites that can be printed out and shared in the future with all.
- J. For biweekly meetings and presentations, “I didn't know” or “I left my USB at home” or “my usb drive wont load” or “the network is down so I can't open my email” are **NOT** acceptable as excuses. Therefore you need to have your presentation finished and loaded onto the research room computer and emailed to me the day before. You also need to save your work on disk or usb drive in case the “Network” is “down”.

## Overview of the 1<sup>st</sup> year in the Science Research Program:

1. We will be spending the first week discussing what you learned this summer as a result of your required, research, reading assignment and talking about the impact of scientific research and the scientific process. This will include watching some videos of research students
2. We will set up a regularly scheduled time, (once every 2 weeks) when you will meet with us individually for ½ a period to review your progress, discuss your new knowledge/articles read, and set new goals. At this meeting your progress will be graded. These bi-weekly meeting grades will make up for 80% of your quarter grade. These meetings will occur during a free period or before school starts.
3. We will be discussing the appropriate use of class time/short term assignments/in-class presentations and how they will be directly related to the remaining 20% of your quarterly grade.
4. At the first meeting we will discuss the following items: *Review of articles/notes covered over the summer. Review of how you kept track of your hours over the summer. Review of the “Entry to the course essays” you they wrote last year. Review of the course requirements including materials and supplies. Your chosen research area and how to progress from here.*
5. You will learn how to most effectively use different types of internet search engines, “popular-based”, (general) search engines as well as “journal-based”, (professional) search engines
6. You will also be assigned to a Student “Mentor”. This is a Junior, (2<sup>nd</sup> year research student), that will help you continuously progress through your reading and research. It is **your** responsibility to constantly *communicate with them and ask for their assistance*. It is **their** responsibility to assist you with: *the finding of info./articles, deciphering research based articles, perfecting class presentations, practicing for your first mentor meeting*. It is **both of your** responsibility to keep track of all *communication and show that at your biweekly meeting*

7. We will be discussing the difference between “general” articles and “journal” articles
8. You will learn how to “Think like a scientist” by designing and carrying out an “at-home” mini experiment with the help of your parents, siblings, friends and anyone else that you can persuade to help you. You will also present the results of this experiment to the class.
9. You will learn how to read and analyze a research journal article
10. You will eventually choose an area to focus on as you read and gather more and more information.
11. You will use Microsoft PowerPoint to present what you have learned about your area of research
12. You will be judging and analyzing presentations by the other members of the class.
13. You will be contacting scientists in your area of choice and asking for their assistance in guiding your future research, (these can be people from our area or as far away as other countries).
14. You will become a “local expert” on the topic of your choice by reading a tremendous amount of material
15. You will eventually contact the author of the articles that most interest you and ask for their help in making a “contact” with a potential mentor in our area that can help guide you with researching in your area of choice.
16. You will meet with that mentor and try to arrange for a Spring/Summer internship. Usually one of the research teachers will attend that meeting as well.
17. You will present your research at our end of year Science Research Symposium as well as a Westchester County Science Fair for 1<sup>st</sup> year research students.
18. You will have the opportunity to sign up to be eligible for college credit for the research you do, in the summer, between Sophomore and Junior year, (CAS109), provided you can be sure that you will be spending over 90 hours on research related activities. This should be easy since a typical research student averages well over 100 hours (sometimes over 200 hours) over the course of a summer.

### **THREE VERY IMPORTANT THINGS TO CONSIDER & REMEMBER**

#### **19. How did students decide on their general topic? on their exact research project?**

Students usually come in to the course having only a basic idea of what he/she wants to do. Often this is based on personal experience or interest. For example he/she may have had a family member that has a disease or disability, he/she may have an understanding and interest in engineering based on family members’ professions, while he/she may be interested in helping the environment.....

In most cases the student spends the first few months reading an extensive amount of background information in the area of their choice. If the student decides that he/she is truly interested in their chosen area of research they will progress on to reading advanced research articles found in professional journals. The specifics of a research project usually do not evolve until after the student meets and is accepted by a professional research that agrees to be his/her mentor. Together they will decide on the specifics of a project suitable for a high school student.

#### **20. Considerations regarding Travel commitment for your Summer Research.**

- a. If you are interested in a **Medical, Biochemical, Microbiological, Chemical project**. the two possible research locations are **NYC-Manhattan** (*Columbia-Presbyterian Medical, NYU, Mt Sinai School of Medicine, Sloane Kettering, etc..*) and **Middle Westchester County** (*Progenics Pharmaceuticals, Regeneron Pharmaceuticals, Acorda Therapeutics, NY Medical College all in the Valhalla/Tarrytown/Hawthorne area*)
- b. If you are interested in an **Engineering or Computer or Physics** project the possible locations are **IBM-Yorktown** or **Hawthorne** or **other locations around Westchester**
- c. If you are interested in an **Environmental, Ecological** project the most common locations are spread **around Westchester County** (Calder Center in Armonk, Mianus River Gorge in Bedford, etc..)
- d. If you are not able to travel to locations as listed above then you will have to consider doing a home based project: **Behavioral/Psychology, Engineering, Math/Computer**, etc.. While you will not have to incur the costs of travel to a research location, all equipment and research costs will be your responsibility.

#### **21. Considerations regarding Time commitment for your Summer Research.**

- a. The largest portion of the actual research occurs during the summer months.
- b. Students typically spend 4-5 days per week for 6-8 weeks of the summer at the research facility.
- c. While taking a week of vacation is certainly acceptable, it must be understood that if a professional scientist/researcher agrees to mentor you on a project, they will expect you to fully commit to the time needed to carry out a top level project.
- d. Behavioral research projects and some Computer, Engineering, and Environmental projects, may be carried out during the school year as much as during the summer

**Please initial all three items indicating you have read and understand the attached information sections. Please also sign and date below.**

Parent      Student  
Initials    Initials

\_\_\_\_\_      \_\_\_\_\_  
I have read, have a full understanding of the  
**“Class Rules for 1<sup>st</sup> year research students”**

\_\_\_\_\_      \_\_\_\_\_  
I have read, have a full understanding of the  
**“Overview of the 1<sup>st</sup> year in the Science  
Research Program”**

\_\_\_\_\_      \_\_\_\_\_  
I have read, have a full understanding of the  
**“THREE VERY IMPORTANT THINGS TO CONSIDER &  
REMEMBER”**

Student name (please print) \_\_\_\_\_

Student Signature \_\_\_\_\_ date \_\_\_\_\_

Parent name (please print) \_\_\_\_\_

Parent Signature \_\_\_\_\_ date \_\_\_\_\_