



MARINE BIOLOGY RESEARCH PROGRAM

Director

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Marine Biologist/Adjunct Professor/Research Educator

Do Now

Fill out the Contact
Information sheet *entirely*.

WELCOME
MBRP
TEAM

2012 - 2013

Objective

- I can understand the importance and benefits of the MBRP.

Why you're here...

- Because you:
 - are responsible,
 - accomplish high level work in a timely fashion,
 - have leadership potential,
 - are ambitious,
 - want a *challenge*.

Marine Biology Research Program

Welcome to the **MBRP!**



Focus by Year

Grade	Class	Skills + Knowledge
10	<i>Introductory Marine Research</i>	Aquatic Chemistry, Instrumentation, Basic Ecology, Technical Reading and Writing
11	<i>Intermediate Marine Research</i>	Project Formulation, Botany + Zoology, Marine Ecology, Remote Sensing, Applied Statistics, Career and Professional Management
12	<i>Advanced Marine Research</i>	Project Management, Experimentation, Professional Writing, GIS - Map making

MARINE BIOLOGY (10th grade)

- Introduction to the principal abiotic and biotic components of aquatic ecosystems.
- Explore the food web and the flow of energy.
- Theory and hands-on labs.
- Use basic instruments to monitor physical/chemical parameters in an Aquatic Ecosystem Model (AEM) that you will build and maintain.

Why MBRP?

7 Reasons

Why MBRP?

Reason 01:

Learn what it takes to stop
environmental destruction.

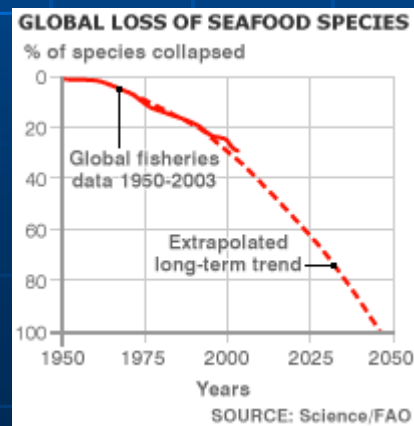


<http://blog.ewea.org/wp-content/uploads/2012/03/AirPollution.jpg>

Problems



http://upload.wikimedia.org/wikipedia/commons/thumb/2/2e/Dhaka_street_crowds.jpg/220px-Dhaka_street_crowds.jpg



http://newsimg.bbc.co.uk/media/images/42269000/gif/_42269000_seafd_global_loss203gr.gif



<http://www.thewaterq.com/wnews1/images/stories/maxqcontent/World/water-pollution4.jpg>

STEM to the Rescue!

- Science
- Technology
- Engineering and
 - Math

MBRP + STEM careers *solve* problems!

Why MBRP?

Reason 02:
Best college prep!

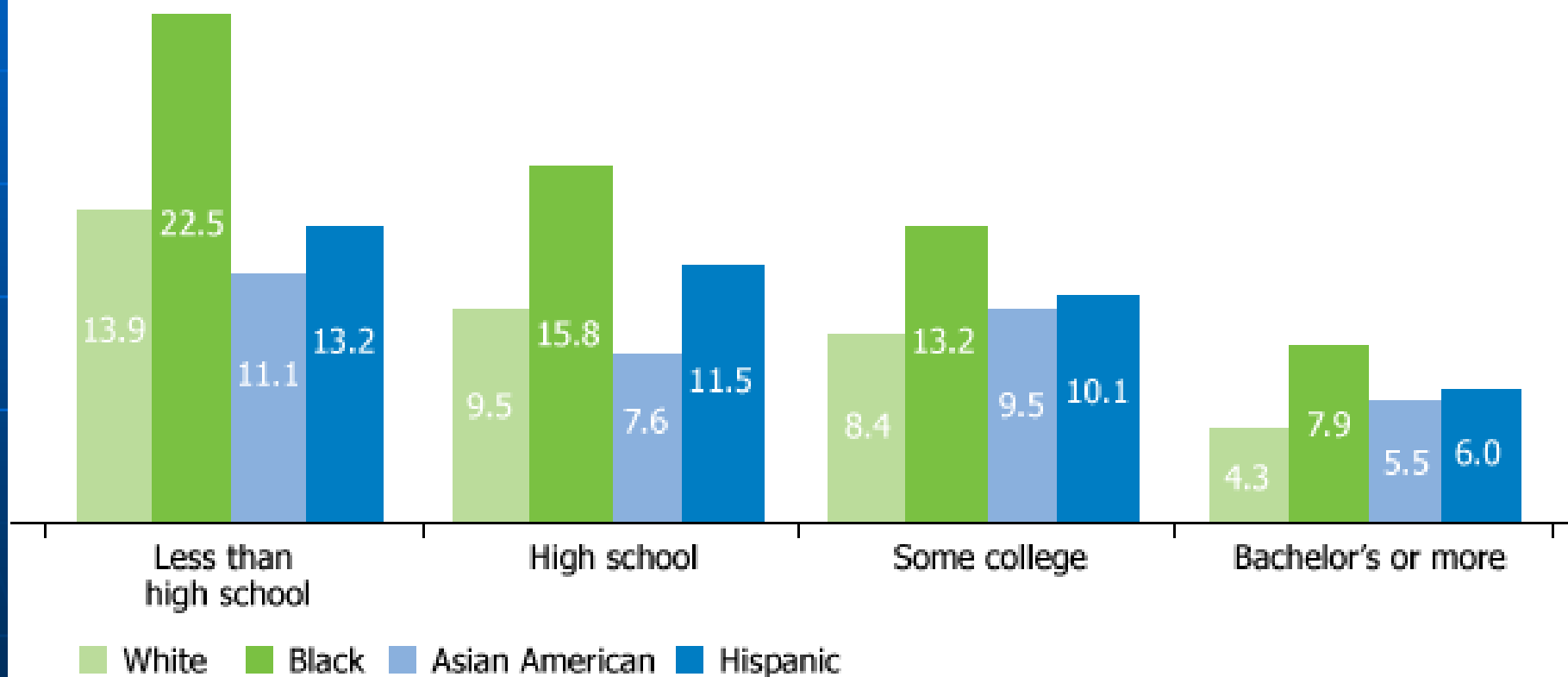
College Credit

Earn up to **12** college credits.



The more college the better...

Percent Unemployed



5 Crucial College Skills

READING

WRITING

MATH

CRITICAL THINKING

COMMUNICATION

Are you ready for the MBRP challenge?

Ex-MBRP Students In:

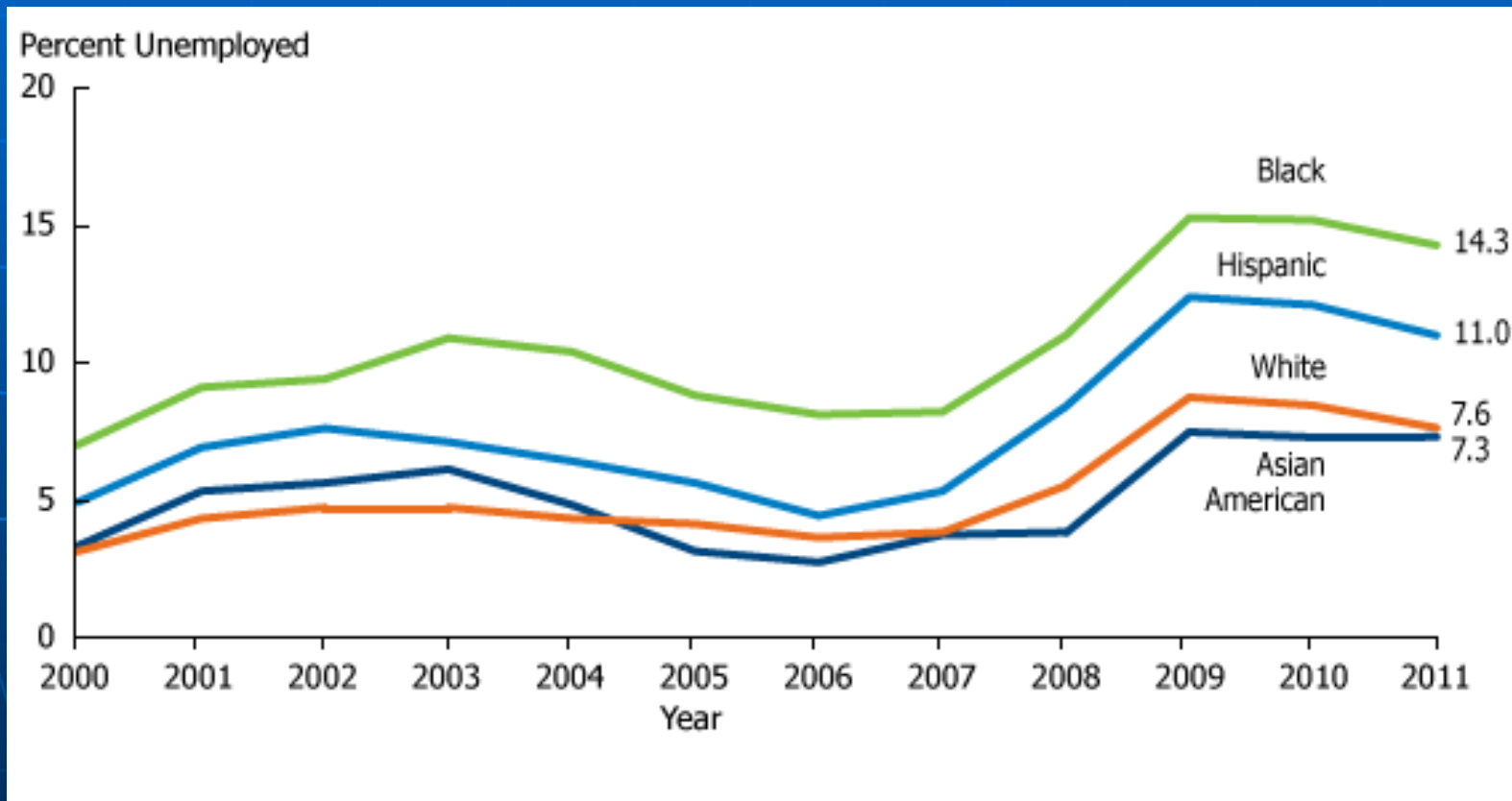
- MIT
 - Carnegie Mellon
 - Vanderbilt
- University of Pennsylvania
 - Brown University
 - City College

Where will you go?

Why MBRP?

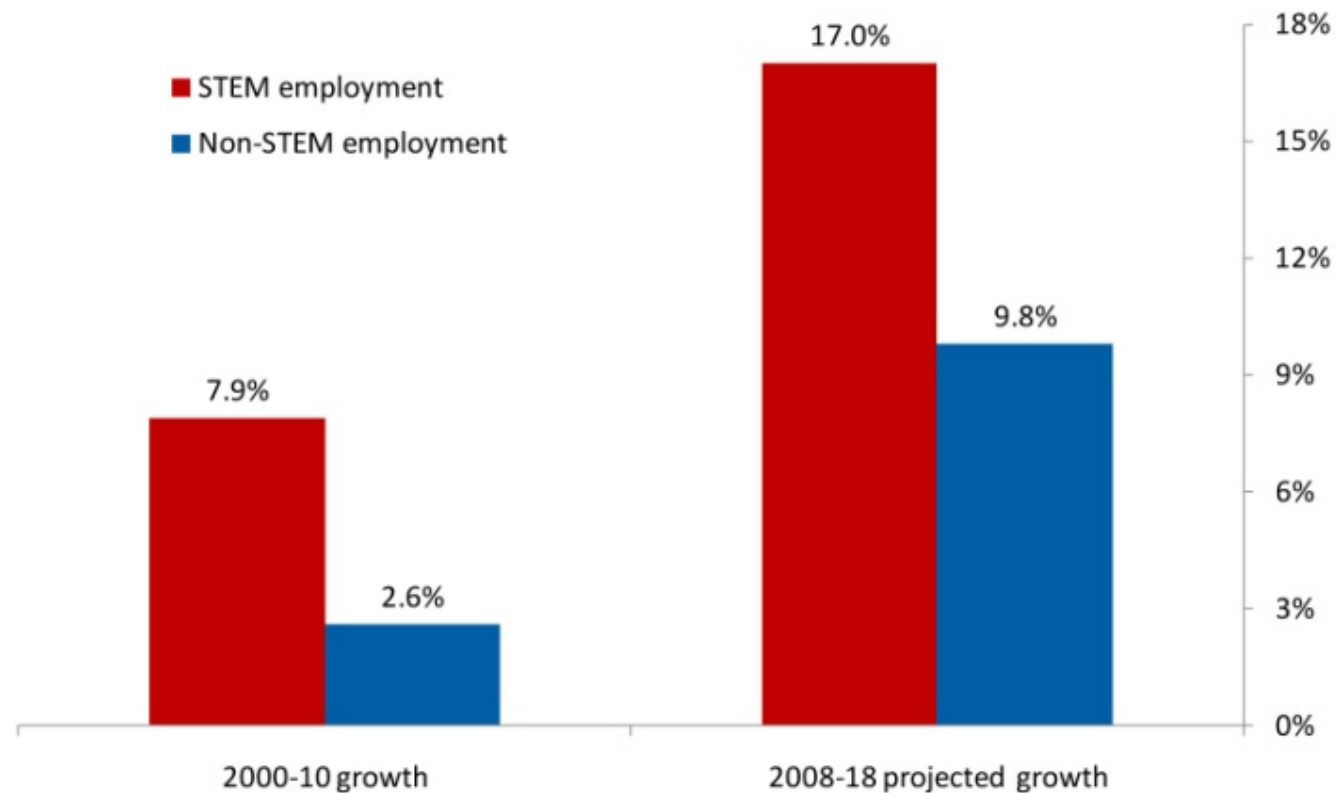
Reason 03:
Skills to pay the bills!

Unemployment...



STEM Solution...

Figure 1. Recent and Projected Growth in STEM and Non-STEM Employment

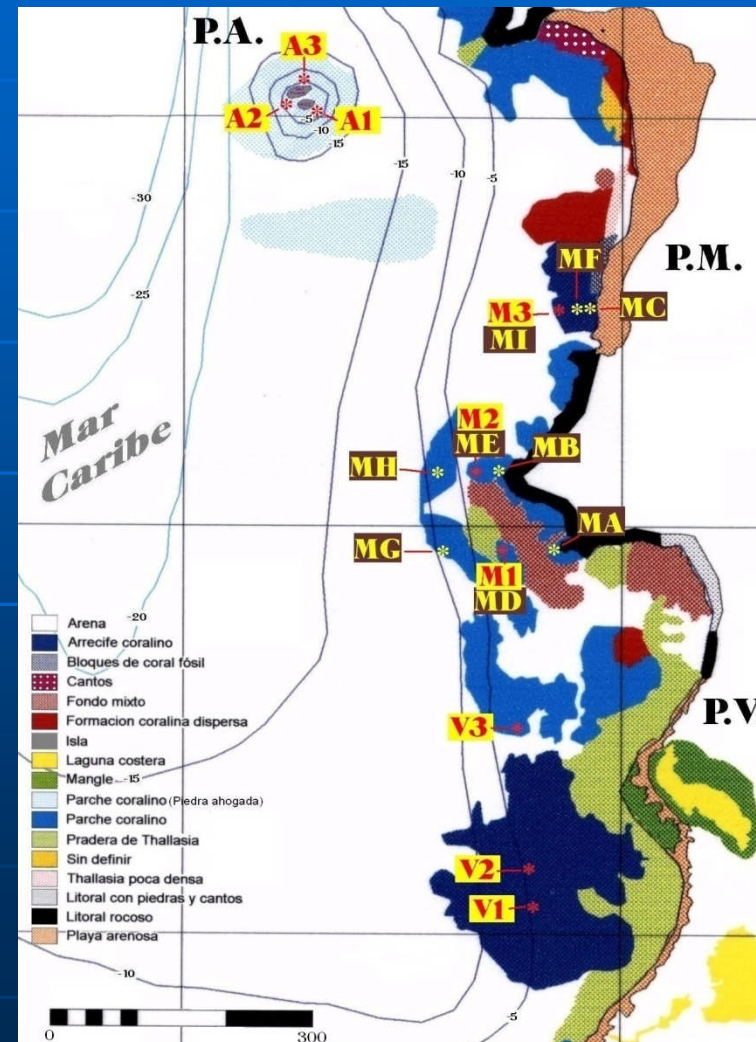


Source: ESA calculations using Current Population Survey public-use microdata and estimates from the Employment Projections Program of the Bureau of Labor Statistics.

<http://www.commerce.gov/sites/default/files/images/2011/july/stem-job-projections-.jpg>

MBRP Building *Resumés*

- Obtain **SPACE GIS Certification** to get a job making maps.



MBRP Building *Resumés*

- Pass the Industry recognized **NOCTI Natural Resource Systems** exam to work for conservation groups.



Skills: CO₂, Particulate Matter, and Black Carbon Pollution Sensing.



Skills: Instrumentation + Remote Sensing

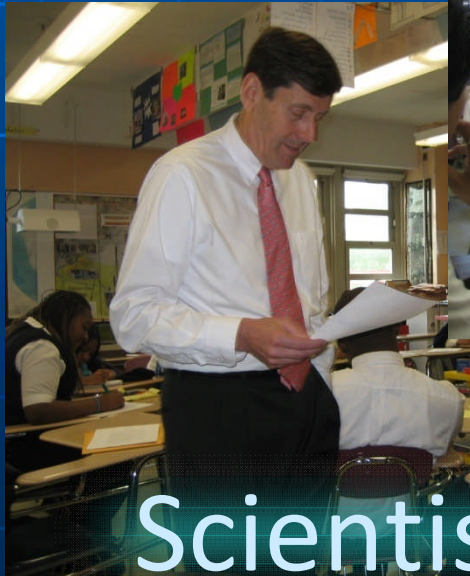
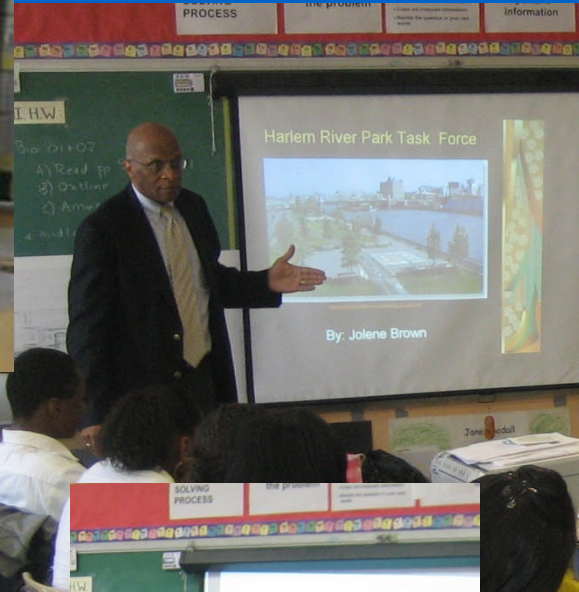


Skills: Alternative energy



Why MBRP?

Reason 04:
Work with scientists.



Scientists from around the world

MBRP - FUTURE SCIENTISTS WANTED!

- Summer internships in research labs (\$?)
- Professional science projects
- Recommendation letters from scientists
- Professional technology and techniques

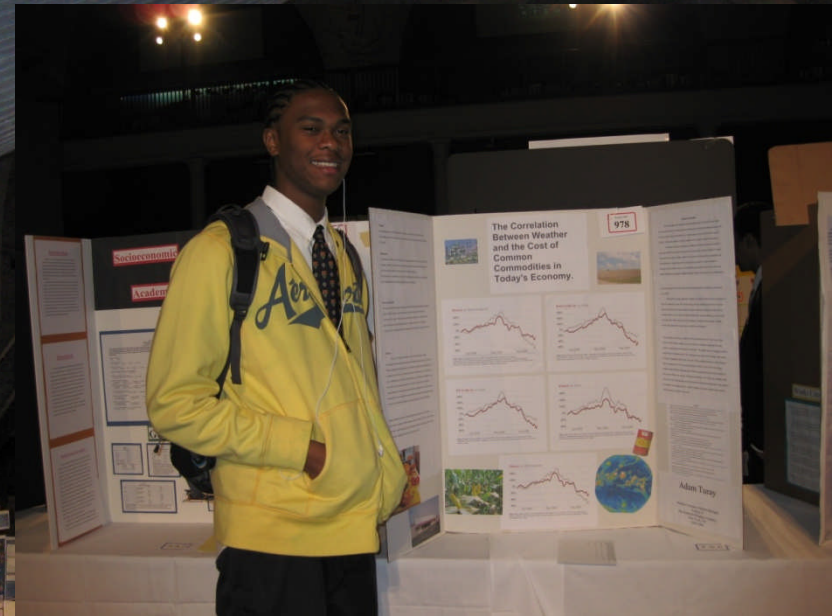


Why MBRP?

Reason 05:

Compete for scholarships and prizes at Regional and International science fairs.

Compete + Earn Scholarship \$



NYCSEF Finalists

- Randy Garcia – 2011
- Jah-Vin Vaughn – 2010
- Adam Turay – 2009



Why MBRP?

Reason 06:

Work on the project of your dreams.

Projects - Econcrete



Projects - Enterococcus



Projects – Plastic vs. Plankton



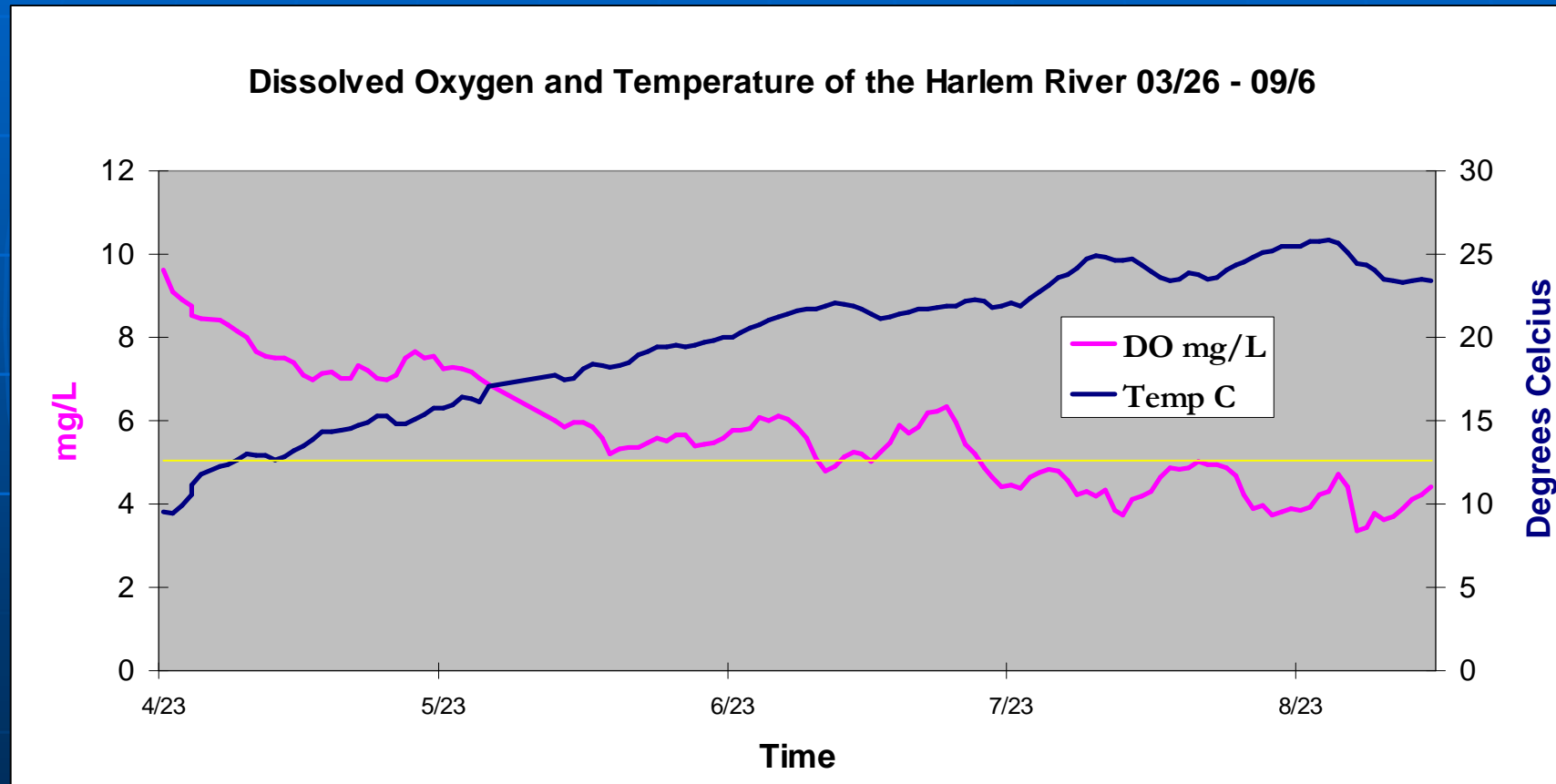
Projects - Systematics



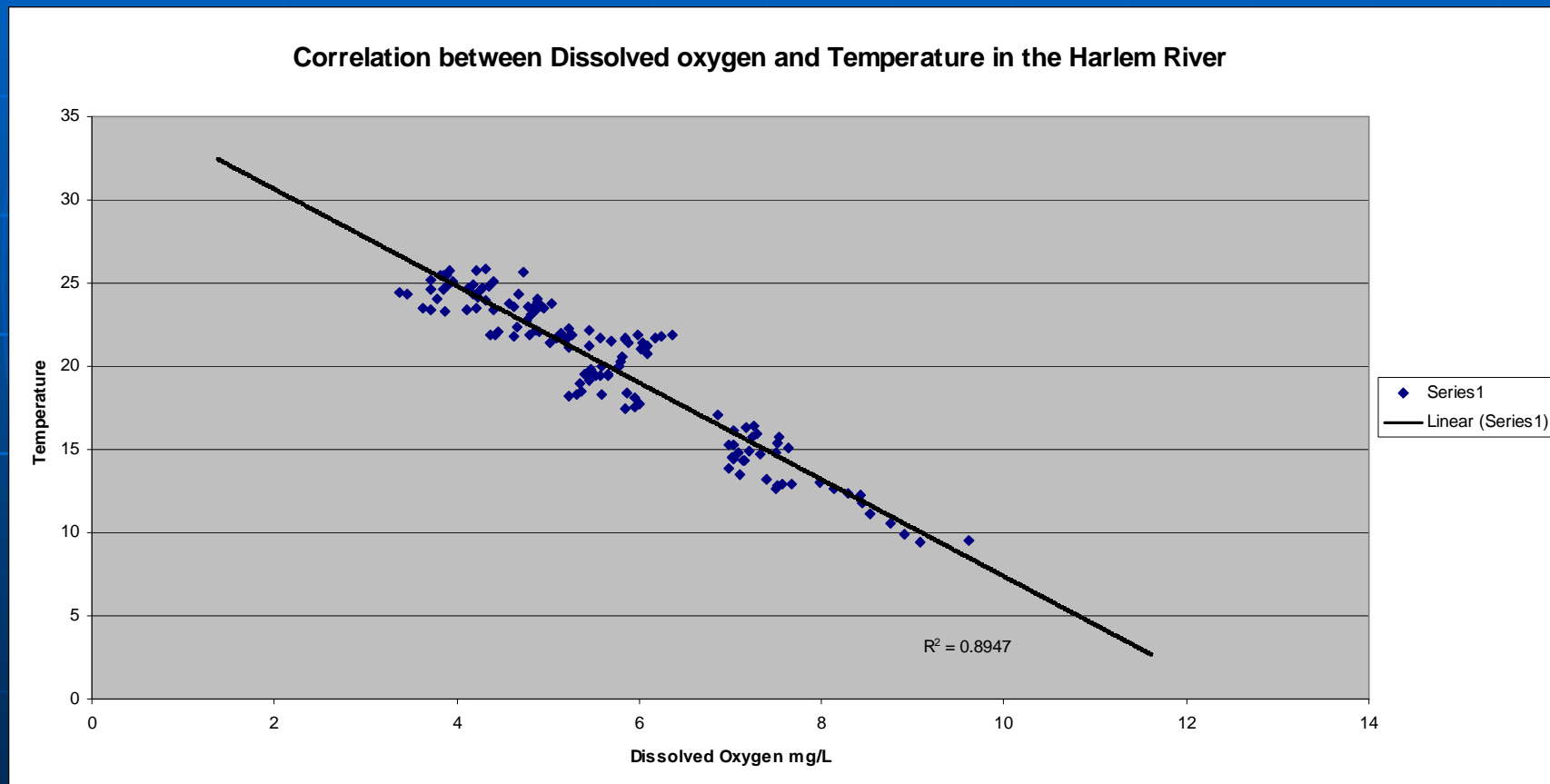
Projects – Water Quality



STEM: Dissolved Oxygen vs. Temperature in the Harlem River by Melissa Jimenez



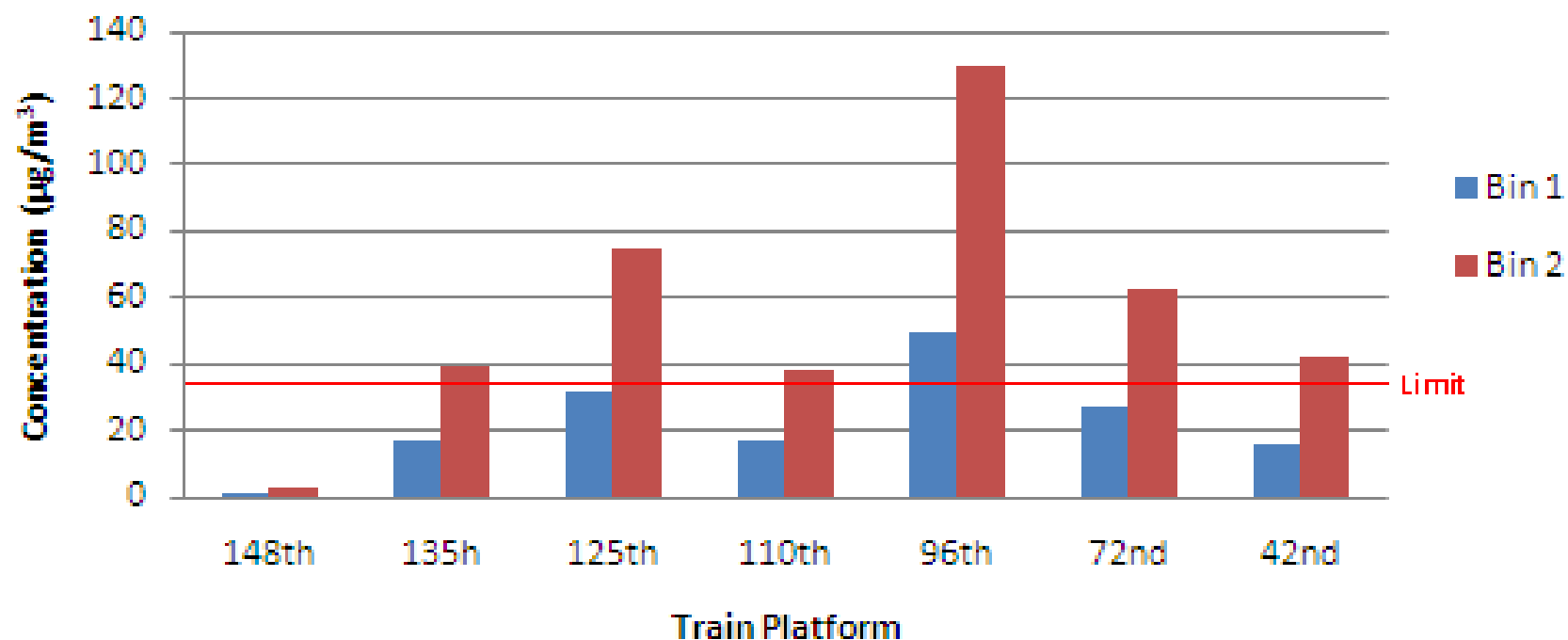
STEM: Linear Regression between Temperature and Oxygen in the Harlem River by Melissa Jimenez



Projects – Air Quality



PM in Harlem train stations vs. downtown stations by Angel Batista



Average PM_{2.5} Concentrations in NYC MTA Train Platforms (Red Line), April 14, 2010

Why MBRP?

Reason 07:
Become a Harbor SEAL



HIGH EXPECTATIONS

- **MASE** - maturity, ambition, sensitivity, excellence
- Keep a lab notebook,
- Keep a portfolio,
- Keep a thumb drive,
- Enter research competitions and local science symposia.

What this program isn't...

- This is not a typical High School subject.
- This is not a typical Advanced Placement class.
- There are no boring questions at the end of chapters.
- This is not just a science course.

What this program is...

THIS IS A COLLEGE PREPATORY
COURSE.

I expect mature behavior and
excellent work.

You will work on *one* project for
three years.

Competitions

- **NYC Science and Engineering Fair** – Recognition and thousands in prize money. Regional winners receive a cash prize and are invited to the International Science and Engineering Fair (all expenses paid)
- **Greater Capital Region Science and Engineering Fair** – Same as above.
- **Siemens** – Over \$1 million in prizes
- **Intel Science & Math Search** – Over \$1.25 million in prizes (seniors)

Benefits

1. Recommendation letters from scientists.
2. Points for your resume.
3. Possible *paid* summer internships.
4. A boost in your professional career.

Other Requirements

- Obtain a scientist mentor and maintain regular contact with them
- Write an annual paper, construct a poster board and slide show presentation
- Participate in NYHS Annual Symposium

Administration

- Go over syllabus
 - Meeting times this year and next.
 - Grading
 - Materials
 - Create a professional e-mail by next week Monday.
- SPECIAL ANNOUNCEMENTS
 - Flu and touching
 - Surveillance cameras
 - Digital gadgets
 - Hats, uniforms, lateness, cutting, etc

H.W.

- Read syllabus.
- Create a professional e-mail.

Any questions?

URBAN ECOLOGY
New York
MARINE
BIOLOGY
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