

# AMGS Cross Mentoring Research Activity 2016-2017

## Syllabus

### I . Mentor

#### 1. Personal Information

Name	<b>Mr. Benito A. Baje</b>
Mobile Number	+63-9778250755
School or Institute	Philippine Science High School-Central Visayas Campus
E-mail	babaje@cvisc.pshs.edu.ph
Major	Materials Science; Physics

#### 2. Education

	Year	Name of University	Major	Degree	Nation
Bachelor's degree	2003	Mindanao State University- Iligan Institute of Technology	Physics	BS Physics	Philippines
Master's degree	On-going	University of the Philippines- Diliman	Physics	MS Physics	Philippines
MS Physics On-going Research	Fabrication and Characterization of High Temperature Bi-2212 Direct Current- Superconducting Quantum Interference Device (DC-SQUID)				

#### 3. Experiences

Duration	Position	Institute or University
2013 to date	Special Science Teacher 3, Head of Research Unit	Philippine Science High School-Central Visayas Campus, Cebu Philippines
2012-2013	Project Consultant/Adviser, Team Philippines during Intel- International Science and Engineering Fair in Bioengineering- Individual Category)	Father Saturnino Urios University, Butuan City Philippines

2009-2010	Project Consultant/Adviser, Team Philippines during the Intel- International Science and Engineering Fair in Material Science and Engineering- Group Category)	Caraga State University- Cabadbaran Campus, Cabadbaran City Philippines
2010-2012	Laboratory Researcher/Apprentice	Condensed Matter Physics Laboratory, High Temperature Superconductor Group, National Institute of Physics- University of the Philippines in Diliman, Quezon City Philippines
2005- 2012	University Instructor 1 (Teaching Physics and Undergraduate Research Classes); Head, University Admission Office; Material Science and Engineering Researcher	Caraga State University- Main Campus; Butuan City Philippines
2003-2005	Physics Lecturer	Mindanao State University- Iligan Institute of Technology

#### 4. Honors and Awards

Year	Title	Remarks
2014	Best Oral Research Presenter in the Field Nanotechnology and Bioengineering, Philippine Institute of Microscopists Annual Scientific Meeting and Conference	Held @ Advanced Device and Material Testing Laboratory, Department of Science and Technology, Manila, Philippines

2010-2012	Commision on Higher Education- National Faculty Development Project Scholar	On-going
2003	CUM LAUDE, BS Physics	Completed
1999-2003	Department of Science and Technology - Science Education Institute Scholar	Completed

## 5. Professional Societies

- A. Philippine Institute of Microscopist, Inc. (Member)
- B. Samahang Pisika ng Visayas and Mindanao (Member), A National Physics Community Group in the Philippines
- C. Samahang Pisika ng Pilipinas (Member), a National Physics Community Group in the Philippines

## II . Syllabus

### 1. Course Title & Criteria

Course Title	<b>NANOTECHNOLOGY IN NATURE</b>
Criteria	<input type="checkbox"/> Biology & Applied Biology
	<input type="checkbox"/> Chemistry
	<input type="checkbox"/> Energy & Environmental Science
	<input type="checkbox"/> Integrated Science
	<input type="checkbox"/> Medicinal Science
	<input checked="" type="checkbox"/> <b>Nano Science</b>
	<input checked="" type="checkbox"/> <b>Physics</b>
	<input type="checkbox"/> Others

### 2. Course Objectives & Description

This course is designed to encourage students to do nanoscience and nanotechnology studies naturally found in nature. Nanoscience and nanotechnology encompasses many areas of science including chemistry, physics, photonics, environmental science and biology.

This course also aims to encourage mentees to appreciate and conduct simple and practical physics innovations studies that could be beneficial to the community

At the end of the course, the mentees will be able to accomplish the following:

- A. Identify and formulate research topic regarding on the potential applications that can be explored from the self-assembled nanostructured formations naturally found around us or develop simple innovative/inventive device that employ physics principles;
- B. Conduct their proposed research;
- C. Write scientific paper/report of their study

### 3. Required Textbook or papers:

- A. Journals/papers will be posted later

#### 4. Final Outcome

Mid-term Report	[ ] Due date:
Final Report	[ ] Due date:
Research Article for APEC Youth Scientist Journal	<input checked="" type="checkbox"/> Due date: January 27, 2017

#### 5. Schedule

Week	Date	Topics and Activities	Assignments & Other Instructions
Week 1	Oct 21 - 27	<ul style="list-style-type: none"> <li>➤ Reading Assignment on how to write research a proposal</li> <li>➤ Look for a possible research topic with at least five (5) review of related literature (RRL) from journals and books for each topic</li> </ul>	Research topic submission with at least 250 words and at most 500 words "Statement of the problem"
Week 2	Oct 28 - Nov3	<ul style="list-style-type: none"> <li>➤ Research Topic critiquing</li> <li>➤ Part 1: Research Proposal Writing with proper citations                             <ul style="list-style-type: none"> <li>-Background of the study</li> <li>-Objectives (General and Specific)</li> <li>-Significance of the Study</li> <li>-Scope and Limitation</li> </ul> </li> </ul>	-Research Proposal Submission (Draft 1)
Week 3	Nov 4 - 10	<ul style="list-style-type: none"> <li>➤ Online Critiquing and feedbacking</li> <li>➤ Part 2: Research Proposal Writing                             <ul style="list-style-type: none"> <li>-Methodology including the possible statistical tools/analysis</li> <li>-References/Proper citations</li> </ul> </li> </ul>	Research Proposal Submission (Draft 2)
Week 4	Nov 11 - 17	<ul style="list-style-type: none"> <li>➤ Consolidate Part I and Part II of the research proposal including the mentor suggestions and comments</li> </ul>	Project proposal submission (Part 1 and Part 2 simultaneously)
Week 5	Nov 18 - 24	<ul style="list-style-type: none"> <li>➤ Gathering of Necessary Materials</li> </ul>	Updates on necessary materials and needed equipment for experimentation
Week 6	Nov 25 - Dec 1	Experimentation Proper	Updates and feedbacking
Week 7	Dec 2 – 8	Experimentation Proper	Updates and Feedbacking

Week 8	Dec 9 – 15	Data Collection and Analysis	Updates and Feedbacking
Week 9	Dec 16 - 22	Data Collection and Analysis	Update and Feedbacking
Week 10	Dec 23 - 29	Data Collection and Analysis	Updates and Feedbacking
Week 11	Dec 30 – Jan 5	Guide mentees to write Research article for APEC Youth Scientist Journal	-
	January 27	Mentee should submit their research article to AMGS admin. team	-