



IN VIVO

The Newsletter of the Metropolitan Association of College and University Biologists

Fall, 1998

Volume 20, Issue 1

**MACUB
GRANTS
AND
AWARDS**

**Pages
3 and 4**

LYNN MARGULIS AND NEIL CAMPBELL TO PRESENT KEYNOTE ADDRESSES AT 31st ANNUAL MACUB CONFERENCE

THE COLLEGE OF STATEN ISLAND TO HOST MACUB CONFERENCE SATURDAY, NOVEMBER 14, 1998

The College of Staten Island will host the 31st Annual Fall MACUB Conference on Saturday, November 14, 1998. The conference theme for this year is "Life: Past, Present and Future" and will feature keynote addresses by Drs. Lynn Margulis, and Neil Campbell.



Dr. Lynn Margulis

Dr. Margulis' publications include a wide array of scientific topics which range from professional to children's literature and include seventeen authored or co-authored books. Her research includes advances in cell biology and microbial evolution and her keynote address will be "What Is Life? What Is An Animal?"

Currently, Dr. Margulis is researching bacterial symbionts of termites and of protists from the microbial mat communities. She

continues to collaborate with James E. Lovelock on investigations concerning his "Gaia Hypothesis". Dr. Margulis was the pioneer of the modern serial endosymbiosis theory thirty years ago and continues to research the concept of symbiogenesis which has since become widely accepted as the mechanism of origin of plastids and mitochondria. Her work continues to provide breakthrough discoveries in the world of symbiogenesis.

Dr. Margulis has been a Distinguished University Professor at the University of Massachusetts since the autumn of 1988 and currently works in the Department of Geosciences at U. Mass. She earned her doctorate at the University of California, Berkeley and has held several fellowships and a professorship at Boston University in the Department of Biology from 1966 to 1988. She currently lives in Amherst, Massachusetts.

Dr. Neil Campbell will present the keynote address, "Biology Education: Past, Present and Future" He earned his M.A. in Zoology from UCLA, where he studied the

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The Newsletter of the Metropolitan Association of College & University Biologists

Serving the Metropolitan New York Area
for 31 Years

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control of protein synthesis during animal development, and went on to the University of California, Riverside, where he earned a Ph.D. in Biology. Dr. Campbell's research efforts on salt transport in plants and the cellular basis of leaf movements have resulted in publications in *Science*, *The Proceedings of the National Academy of Sciences*, and *Plant Physiology*, among other journals. Dr. Campbell is also noted for his series of "Conversations" with famous biologists which appears in *The American Biology Teacher*. James D. Watson, Linus Pauling, Stanley Miller, Jane Goodall, Nancy Wexler and Ernst Mayer are just some of the individuals interviewed.

In addition to his accomplishments as a research scientist, Dr. Campbell has earned a reputation as an outstanding classroom teacher with a strong commitment to improving undergraduate education. He has taught general biology and cell biology at San Bernardino Valley College, Cornell University, and currently is a Visiting Scholar in Botany and Plant Science at the University of California, Riverside. In 1986 he received the Outstanding Professor Award for excellence in classroom instruction. Dr. Campbell is the author of several highly successful college biology textbooks published by The Benjamin/Cummings Publishing Company, Inc.

For further information on the fall conference, please contact Dr. Charles Kramer, the Conference Chairperson at (718) 982-3873. ♦



Dr. Neil Campbell

CALL FOR PAPERS

IN VIVO is published during the Fall, Winter, and Spring. Members are asked to submit papers, abstracts and articles to be included in future editions of **IN VIVO** to: Dr. Pamela Monaco, Molloy College, Department of Biology, 1000 Hempstead Avenue, Rockville Centre, NY



JOSEPH CONCANNON MEMORIAL RESEARCH AWARD



The Executive Board of MACUB is pleased to announce the Joseph Concannon Memorial Research Award to honor the memory of Joseph Concannon - researcher, outstanding teacher, long time member of MACUB and its Executive Board, and good friend to us all.

This annual competitive award of a maximum of \$500 is to be used to fund a student research project in the area of biology. The student research is to be supervised by a college faculty member who is a current member of MACUB.

Eligibility:

Only current-active members of MACUB are eligible for this award. It should be noted that any member of the Executive Board or Awards Committee may apply for this award. However, if an applicant, he/she will not take part in the selection procedure for this award.

Application Procedure:

Application for the Joseph Concannon Memorial Research Award shall consist of:

- sponsoring a. A cover page indicating the name(s) and academic affiliation(s) of the faculty and the title of the project;
- need b. A brief description (not to exceed 500 words) describing the project and the need for funding;
- c. A summary budget;
- d. A brief vita of the faculty sponsor(s).

Deadline For Submission:

All applications for the 1998 Joseph Concannon Memorial Award must be received by September 30, 1998 to be considered for next year's award.

Send Application to:

Dr. Nathan Dubowsky, Awards Chair
Biology Department
Westchester Community College
75 Grasslands Road
Valhalla, New York 10595

Announcement and presentation of the Joseph Concannon Memorial Award, recommended by the Awards Committee and awarded at the sole discretion of the Executive Board of MACUB, shall be made at the 31st Annual MACUB Conference. In the event that no worthy proposals are received, no award will be made.

Obligations of the Award Recipients:

It shall be the obligation of the award recipient(s) to:

- a. Submit a brief report of how the funds were used, the name(s) of the student(s) involved in the project, and the status of the research funded by September, 1999.
- b. Arrange for a brief student presentation at the 32nd Annual Fall MACUB Conference in 1999.
- c. Acknowledge the MACUB Joseph Concannon Memorial Research Award in any publication that results fully or in-part from the research afforded by this award.



MACUB PRESIDENT'S MEMORIAL AWARDS

Excellence in Research, Scholarship, Service or Teaching



In 1990, The Executive Board of the Metropolitan Association of College and University Biologists, in the name of the membership of:

The Metropolitan Association of College and University Biologists
established the annual

MACUB President's Memorial Awards

as a warm and fitting tribute to the memories of past, deceased presidents of the Metropolitan Association of College and University Biologists:

Professor Nicholas Anagnostakos

Dr. Leonard Abrams

Dr. George Fried

Award:

A maximum of three awards shall be given each year. Each award shall consist of a \$100 dollar honorarium. The awards will be presented to current-active members of MACUB who have, in the opinion of the Awards Committee, distinguished themselves in the areas of:

- a. **Research or academic scholarship;** and or,
- b. **Service to the profession;** and or,
- c. **Teaching.**

Eligibility:

All nominees must be current-active members of the Metropolitan Association of College and University Biologists at the time of nomination. It should be noted that any member of the Executive Board or Awards Committee is eligible for nomination. However, if nominated, he or she will not take part in the selection procedure for these awards.

Nomination Procedure:

Nominations for the MACUB President's Memorial Awards may be made by any current-active member(s) of MACUB. The award application shall consist of a statement of no more than 500 words describing the contributions and achievements of the nominee and the reasons why the nominee should be so honored. Self-nominations will be considered.

Deadline For Submission:

All nominations must be received by September 30, 1998

Send Application to:

Dr. Nathan Dubowsky, Awards Chair
Biology Department
Westchester Community College
75 Grasslands Road
Valhalla, New York 10595

Announcement and presentation of MACUB President's Memorial Awards, recommended by the Awards Committee and awarded at the sole discretion of the Executive Board of MACUB, shall be made at the 31st Annual MACUB Conference. In the event that no worthy candidates are nominated, no award will be made for this year.

ACCOMMODATING DIFFERENT LEARNING RATES

*Tom O'Brien, Ed.D., Biology Department
Nassau Community College*

There is a **diversity** in the current student body with regard to age, educational background, academic ability, achievement in the basic skills, motivation, and interest, etc. Given such a diversity in the student population, there are bound to be, and, in fact, are significant differences in the ability of students to master the content/skills of the various courses offered at institutions of higher education within the prescribed number of semester hours.

Substantial literature points out that the rate of learning is tied up with other aspects of learning. Additional kinds of **learning differences** include, among others:

- *differences in the ability to conceptualize, to grasp ideas;*
- *differences in the rate of learning; two students with the same intellectual or cognitive power may need a lesser or larger amount of time in which to master the same concepts;*
- *differences in the way students learn: some have to see it, other have to hear it, others have to read it, and still others have to do all these; and*
- *differences in the way students learn best from different teaching styles; some prefer instructors who lecture; others, instructors who invite discussion; still others, instructors who stress small group work; and, finally, a last group who do best with instructors on a one-to-one relationship based on a self-paced, personalized instructional model.*

In the light of such learning differences to be found among students, **instructional practices** should provide a diversity of learning experiences or opportunities to match those learning differences.

There are many **instructional approaches** which have been cited in the literature dealing with teaching in post-secondary institutions. Some approaches include, among others:

- *Integrated Curriculum Approach*
- *Computer Assisted Instruction*
- *Electronic Classroom/Distance Learning*
- *Interdisciplinary/Multidisciplinary Approach*
- *Team Teaching Approach*
- *Small Group/Cooperative Learning*
- *Diagnostic/Prescriptive Approach*
- *Use of Media/Audio-Visual Aids*
- *Modular Instruction*
- *Contract Learning*
- *Programmed Learning, T.V. University*
- *Laboratory Approach*
- *Characteristic of a Classroom Focused on Individualized Learning*
- *Mastery Learning*
- *Cognitive Styles*
- *Self-Teaching/Interactive Media*
- *Activity Learning Approach*

If instructors are to accommodate their teaching to the diversity of student learning differences, they need to explore and implement the above approaches and others in search of emphases, materials, and techniques which are suited for individual learning and themselves, as well as classes.

THE TEACHING AND LEARNING

The primary policy document of the Commission on Higher Education of the Middle States Association of Colleges and Schools, *Characteristics of Excellence in Higher Education: Standards for Accreditation* (1995), details expectations for self study as a requirement for institutional accreditation. Among those expectations are specific references to the need for institutions to develop an ongoing assessment plan that

(Continued on page 6)

attempts to determine the extent and the quality of student learning and improve teaching where needed.

The following references document numerous theories, studies and institutional initiatives that provide insight into effective practices in the teaching and learning of general education.

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COMMUNITY ENVIRONMENTAL HEALTH CONFERENCE

TOPIC: BREAST CANCER ON LONG ISLAND

October 16th 1998

at

SUNY OLD WESTBURY

Co-sponsored by SUNY Old Westbury, Nassau Community College, and the 1 in 9 Long Island Breast Cancer Action Coalition. The program will include: "The Epidemiology of Breast Cancer on Long Island", Dr. Marilee Gammon, Columbia University.; "Diet and Breast Cancer", Dr. Steven Stellman, American Health Foundation.; "Endocrine Disruptions and Breast Cancer: What Is The Evidence?", Dr. Frederick Vom Saal, University of Missouri; "The Genetics of Breast Cancer" Dr. Diane Esposito, Cold Spring Harbor Laboratory; "Recent Advances in Breast Cancer: Dare We Speak of a Cure?" Dr. Dwight De Risi, North Shore University Hospital

For more information contact:

Dr. K Prabhakar (516)-572-8086 or prabhak@sunynassau.edu

Biology Department, Nassau Community College or,

Dr. S. Pryor, Chair, (516)-2750, Biology Department, SUNY Old Westbury

HORSESHOE CRAB MINI-CONFERENCE AND CELEBRATION

CO-SPONSORED BY MACUB, GATEWAY NATIONAL RECREATION AREA
and THE SCIENCE MUSEUM OF LONG ISLAND

Catherine D. Kelly, Ph.D., Biology Department, Nassau Community College

The Horseshoe Crab Mini-Conference and Celebration was held on May 22 - 23, 1998 as a cooperative program between MACUB, the National Park Service/Gateway National Recreation Area and the Science Museum of Long Island. The meeting began Friday morning the 22nd at the Visitor Center at Fort Wadsworth on Staten Island with Greetings from John Tanacredi, Chief of the Division of Natural Resources at Gateway. Those in attendance were treated to a variety of interesting speakers who provided a most comprehensive view of *Limulus* biology, ecology, lore and law.

Featured speakers included: Dr. Carl Shuster, of the Virginia Institute of Marine Sciences Horseshoe Crab Biology Center; Peter Himthak, Coordinator of the New Jersey Department of Environmental Protection Horseshoe Crab Project; Dr. Thomas Novitsky of Associates of Cape Cod; Dr. Larry Niles of the New Jersey Department of Environmental Protection Endangered and Non-game Species Division; and Kathleen Rogers and Josh Eagle of the National Audubon Society.

Did you know that it takes tens years for a horseshoe crab to mature? After this time they no longer molt, but it is possible to estimate their ages by the wear on their carapaces. Horseshoe crabs are ancient animals and exist today relatively unchanged from their ancestors. These are animals of the continental shelves of the world, and require shallow embayments for spawning.



Spawning activity is tied to the times of the spring tides in May and June. These are times when we get treated to seeing the animals up close all along the Atlantic seaboard, but most especially in Delaware Bay. The abundance of eggs which are laid in the sandy shores of the Mid Atlantic bays not only sustain the future of *Limulus*, but also provide an incredible source of nourishment for the spring shorebird migration. Birds such as the Red Knot, Sanderling, Dunlin, Ruddy

Turnstone and others can double their bodyweight during their northward migration from South America to the Arctic. By eating the unburied eggs of horseshoe crabs. The Birds then fly directly (nonstop) to their tundra nesting grounds.

Viewing the spring migration of shorebirds has been a major source of ecotourist money in New Jersey, however this spectacular display is in serious jeopardy!

Horseshoe Crabs are harvested for a variety of commercial uses. The major ones include biomedical research and fisheries. Collection of horseshoe crabs for use as bait by fishermen is clearly the major threat to the crabs and the birds. The New Jersey Department of Environmental Protection has measured significant declines in the number of spawning crabs, surface egg numbers and buried egg numbers in the last two years. The department's assessment is that the horseshoe crab population is on the verge of collapse. There has also been a statistically significant decline in migrating shorebirds during the last ten years. Although the decline in bird numbers is multifactorial, the loss of

(Horseshoe Crab Mini-Conference-Continued)

(Continued on page 8)

their sole migration food source signals further trouble to come. The indiscriminate collection of horseshoe crabs for bait is being combated by New Jersey, Delaware and Maryland with legislation limiting the number of horseshoe crab collection permits issued each year. The Permit holders are also restricted in how they collect crabs, and/or how many crabs they collect, and by season to try to help maintain a sustainable yield of horseshoe crabs. The National Audubon Society has been working with the Atlantic Coast State Governments to strengthen legislation and public awareness.

Prospects for horseshoe crabs used in the biomedical industry are better than those collected for bait. Associates of Cape Cod produces *Limulus Amebocyte Lysate* (LAL) antigen from horseshoe crab blood collected from animals which are returned to the wild after being bled. The industry recognizes that horseshoe crabs must continue to thrive in the wild if the business is to continue to exist. Care is taken at all steps of the handling, and financial incentives are given to collectors to reduce the likelihood of their selling the animals to bait shops. The LAL assay is an important (and economical) method for pharmaceutical and medical device manufacturers to detect Gram negative bacterial endotoxin contamination of their products. Without this testing, consumers of these drugs and devices would face health risks, or rising costs for the products they need to maintain their health.

Other features of Friday's meeting included a lovely lunch which most enjoyed out-of-doors. We finished our day on Staten Island with a tour of historical Fort Wadsworth

provided by the National Park Service Interpretive Staff. After our tour of the Fort, we adjourned for dinner to Abbracciamento's on the Canarsie Pier. A good meal, camaraderie and the recognition of those who worked to bring the conference together , closed the day.

On Saturday, May 23rd, those of us who were hardy enough to rise early met at 6:30 AM at the Jamaica Bay National Wildlife refuge for a morning walk to view spawning horseshoe crabs. In addition to the crabs, we also saw a variety of bird species and enjoyed a great start to the day which continued with a brunch cruise through Jamaica Bay and New York Harbor to the Verazzano Narrows Bridge. aboard the Amberjack Those who had not risen early got their up close views of horseshoe crabs at the Refuge after the cruise returned to Canarsie Pier. The weather was as magnificent Saturday as it had been on Friday.

I'm sure that all who attended found the horseshoe crab mini-conference to be most informative and enjoyable. We thank John Tanacredi for providing copies of his book, "A Gateway Visitors Companion" gratis to all who participated in the conference. I would recommend learning more about these interesting animals, and their ecological relations to the spring shorebird migration to all MACUB members who teach environmental biology.it provides an excellent example of how human activities can alter the environment that students can easily see right here in the metropolitan area.♦

DON'T MISS THESE WORKSHOPS AT THE 31st ANNUAL MACUB CONFERENCE:

"What Happens to Trash and Garbage? An Introduction to the Carbon Cycle" This workshop presented by Lynn Margulis and will present classroom teaching activities to demonstrate how refuse breaks down and is recycled back to a usable form.

"Living Sands: Mapping Time and Space" This workshop was developed by Lynn Margulis and will be presented by Allison Pitt . It will demonstrate the importance of fossil protists and will include deep sea drilling and foraminifera reproduction.



HORSESHOE CRAB MINI-CONFERENCE MAY 22-23 1998



Photographs by:
Nat Dubowsky and
Christine Kurtze



Visit the M.A.C.U.B.
web site at:
www.liu.edu/macub

The MACUB web site is now up and running. We now call for members to suggest additions to the page to better serve the organization. If you have personal or academic pages on the Internet or know of existing resources that may be helpful to your colleagues, send an e-mail to the web master at aepass@hornet.liunet.edu and link will be added. There is also space on the web site for members to post pages for their courses in cases where their home institution lack the necessary resources for web publishing.

The web site is intended to be a source of information on the organization and a resource for faculty and students. We hope that all members visit the site and notify us of your impressions.

Thank You,
Anthony DePass and Gary Sarinsky

Poster Presentations

If you or any of your students wish to make poster presentations, at the Annual MACUB Conference please notify Dr. Charles Kramer, 1998 Conference Chairperson at The College of Staten Island, Biology Department, 2800 Victory Boulevard, Staten Island, NY 10314 (718-982-3873) or Prof. Gary Sarinsky, MACUB President, Kingsborough Community College, Department of Biological Sciences, 2001 Oriental Boulevard, Brooklyn, NY 11235 (718 368-5503)

Student Membership

We encourage your students to become Associate Members in MACUB. Many of them will go on to graduate and professional schools. Their membership, participation and attendance at conferences such as these can enhance the experiences they include on their applications and discuss during interviews.

CONFERENCE PROGRAM

8:15 - 9:15 AM

***Registration and
Continental Breakfast
*Exhibitor Displays
*Poster Presentations**

9:15 - 9:30 AM

***Welcome**

9:30 - 10:45 AM

***Keynote Address
Dr. Lynn Margulis
“What Is Life? What Is An
Animal ?”**

10:45 - 11:45 AM

***Exhibitor Displays
*Poster Presentations**

11:45 - 12:45 PM

***Keynote Address
Dr. Neil Campbell
“Biology Education: Past,
Present and Future”**

12:45 - 2:15 PM

***Luncheon and
Business Meeting**

2:15 - 3:45 PM

***Concurrent Workshops
‘What Happens to Trash and
Garbage? An Introduction to
the Carbon Cycle’**

**Presented by
Dr. Lynn Margulis**

**“Living Sands: Mapping Time
and Space”**

Presented by Ms. Allison Pitt

1998 MACUB Conference Registration Form
31st Annual MACUB Conference at The College of Staten Island
Saturday, November 14, 1998

Registrations should be returned no later than October 22, 1998. Registration on the day of the conference will be \$45. A separate form must be completed by each person attending the conference. Please photo copy this form for each additional registrant.

Dr.
 Prof.
 Mr.
 Ms.

Regular Member
 Full-Time Faculty
 Adjunct Faculty¹

Student Member¹
 Member's Spouse/Guest

* Name: _____
* Department: _____
* School: _____
* Address: _____

* School Phone: _____
* Fax: _____
* E-Mail: _____

* The above information may appear in a Directory of Members unless you indicate otherwise.
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I prefer MACUB mailings
to be sent to my:

Home Phone: _____

School Home¹

¹Student and adjunct mailings will normally be sent to your home address.

	In Advance <u>by 10/22</u>	On-Site <u>11/14</u>	
<input type="checkbox"/> Regular Member	\$40	\$45	Includes 1999 membership dues, conference registration, continental breakfast and luncheon.
<input type="checkbox"/> Student Associate Membership	\$25	\$30	Includes 1999 Associate Membership dues, conference registration, continental breakfast and luncheon.
<input type="checkbox"/> Member's Spouse/Guest	\$25	\$30	Includes conference registration, continental breakfast and luncheon.

I will not be attending the Conference but enclosed is my 1999 membership dues.
 Regular Member \$15 Student Member \$5

Return this registration form by October 22, 1998

Please make checks payable to: MACUB

Send registration form and check to:

Dr. Paul Russo
Division of Natural Sciences & Mathematics
Bloomfield College
467 Franklin Street
Bloomfield, NJ. 07003

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