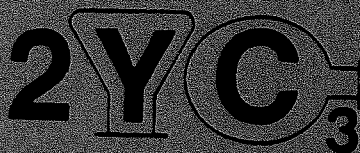


97

CHEMISTRY TECHNICIAN TRAINING

PAST, PRESENT, AND FUTURE



TWO YEAR COLLEGE CHEMISTRY CONFERENCE
DIVISION OF CHEMICAL EDUCATION
AMERICAN CHEMICAL SOCIETY

October 16 and 17, 1987

Southeast Community College

Lincoln, Nebraska

1987 EXECUTIVE COMMITTEE

CHAIRMAN

Edith Bartley
Tarrant Co.
Junior College
5301 Campus Dr.
Ft. Worth, TX
76119

(817) 531-4754
Home (817)
498-2177

IMMEDIATE
PAST CHAIR

Onofrio Gaglione
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Technical Coll.
300 Jay Street
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CHAIR-ELECT

Ralph Burns
St. Louis Comm.
College-Meramec
11333 Big Bend
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TREASURER/
COLLEGE SPONSOR

John Clevenger
Truckee Meadows
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Blvd.

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89512

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MEMBERSHIP
CHAIR

Mike Knoll
Vincennes
University
Jr. College
Vincennes, IN
47591-9986

INDUSTRIAL
SPONSORS CHAIR

Elliott Greenberg
Prairie State
College
P. O. Box 487
Chicago Heights, IL
60466

PAST CHAIRS

Jay Bardole
Marian Baker
Tamar Susskind
Douglas Bond
Katherine Weissmann
Paul Santiago
John Mitchell

ACS Liaison

Jim Bradford
American Chemical Society
1155 Sixteenth Street
Washington, DC 20036
(202) 872-4587

THE NINETY SEVENTH TWO-YEAR COLLEGE CHEMISTRY CONFERENCE

THEME: CHEMISTRY TECHNICIAN TRAINING - PAST, PRESENT, AND FUTURE

FRIDAY, OCTOBER 16, 1987

- 9:00 - 3:00 Registration, Exhibits, Coffee - Room B-8
- 10:00 - 11:00 Committee On Chemistry in the Two Year College - Room B-7. Edith Bartley, Tarrant County Junior College, South Campus, Fort Worth, TX 76119, Chair COCTYC, presiding. This meeting is open to all interested persons.
- 11:00 - 11:10 Opening - Room B-7, Edith Bartley, Chair, 2YC, Welcome - Room B-7. Dr. Jack Huck, Campus Director, Southeast Community College, Lincoln Campus and John Kenkel, Program Chair.
- 11:10 - 12:00 Conference Keynote Address: Education For A Discontinuous Process. Ken Chapman, Head, Dept. For Nontraditional Education, ACS, Washington, D.C.
- 12:00 - 1:30 LUNCH - College cafeteria serving line, then to Room E2/E3 off southwest corner of cafeteria, or at one of various restaurants in the area.

FRIDAY AFTERNOON SESSION - NEW AND INNOVATIVE TECHNICIAN PROGRAMS - Room B-7

- 1:30 - 2:00 An Innovative Chemistry Technician Program in Maryland. Les Picker, Cecil Community College, North East, Maryland.
- 2:00 - 2:30 The New Integrated Science Technology Program at Johnson County Community College. H. Eugene Jack, Johnson County Community College, Overland Park, Kansas.
- 2:30 - 3:00 BREAK
- 3:00 - 3:30 Competency Based Curriculum For A Biotechnology Laboratory Technician Program. Joy McMillan, PhD. Madison Area Technical College, Madison, Wisconsin.
- 3:30 - 4:00 Development of a Two-Year Biotechnology Program. Debbie Fast, Central Community College, Hastings, Nebraska.
- 4:00 - 4:30 A Microbiology/Biochemistry Component In A Technician Program. Don Mumm, Southeast Community College, Lincoln, Nebraska.
- 6:00 - 7:00 Social Hour, Piedmont Room, Villager Motor Inn.
- 7:00 - 8:00 Banquet, Piedmont Room, Villager Motor Inn.
- 8:00 - 9:15 Welcome, Dr. Jack Huck, Southeast Community College Campus Director
Banquet Presentation:
Mass Spectrometry: One Method of Analysis in Biotechnology and Environmental Chemistry. Michael L. Gross, Director of the Midwest Center for Mass Spectrometry, University of Nebraska.

SATURDAY, OCTOBER 17, 1987

8:00 - 12:00 Registration, Exhibits, Coffee - Room B-8.

SATURDAY SESSION: WHAT'S HAPPENING IN ESTABLISHED
PROGRAMS - ROOM B-7

- 8:30 - 9:00 Chemical Technology at Florissant Valley. Tom Mines, St. Louis Community College at Florissant Valley, St. Louis, Missouri.
- 9:00 - 9:30 The Ferris State College Chemical Technology Curriculum. Norman Peterson, Ferris State College, Big Rapids, Michigan.
- 9:30 - 10:00 Ten Years of Developing Chemical Technicians - Looking Back and Planning Ahead. George Williams, State Technical Institute at Memphis, Memphis, Tennessee.
- 10:00 - 10:30 BREAK, Refreshments, Room B-8
- 10:30 - 11:00 Chemical Technology at Cape Fear Technical Institute. Dale Buck, Cape Fear Technical Institute, Wilmington, North Carolina.
- 11:00 - 11:30 Chemical Technology in an Urban Two Year College - Yesterday, Today, and Tomorrow. Onofrio Gaglione, New York City Technical College, Brooklyn, N.Y.
- 11:30 - 12:00 The Research Laboratory Technology Program at ~~Athens Technical School~~, Carol White, Athens Area Vocational Technical School, Athens, Georgia
- 12:00 - 1:30 LUNCH - College Cafeteria, or at one of various restaurants in the area.
- 1:30 - 2:00 A Hazardous Materials Technician Program. John Bonte, PhD., Clinton Community College, Clinton, Iowa.
- 2:00 - 2:30 TO BE ANNOUNCED
- 2:30 - 3:30 Round Table Discussion (participants to be selected at the conference).
- 3:30 End of Conference.

*Very good -
Contact Carol
for possible
committee work, etc.*

AGENDA

Committee on Chemistry in the Two-Year Colleges

Friday, October 16, 1987

General Meeting, Southeast Community College

- I. Introductions
- II. Approval of the minutes from the Rockville meeting
Executive meeting minutes, page 1
Open meeting minutes, page 3
- III. Reports
 - A. Chair--Edith Bartley
 - B. Rockville meeting--Alan Heyn (Edith Bartley)
 - C. Lincoln meeting--John Kenkel
 - D. Jacksonville meeting--Wendell Massey
 - E. Membership--Mike Knoll, page 5
 - F. Treasurer--John Clevenger, page 6
 - G. College Sponsors--John Clevenger, page 7
 - H. Industrial Sponsors--Elliott Greenberg, page 11
 - I. Meeting sites--Edith Bartley, page 12
 - J. Programs and workshops--Dick Gaglione
 - K. ACS Two-Year Colleges Program--Jim Bradford (Edith Bartley)
- IV. Old business
- V. New business
- VI. Information items, pages 15 through 47

2YC₃ EXECUTIVE COMMITTEE MEETING
Town Centre Inn, Room 106
Rockville, Maryland
Thursday, May 21, 1987

Members present: Edith Bartley, Jim Bradford, Dick Gaglione, Ralph Burns, Elliott Greenberg, Michael Knoll.

Guests present: Margot Schumm, Alan Heyn, Annette Rosenblum (ACS).

OPENING: Edith Bartley, Chair, called the meeting to order at 7:45 p.m. and distributed copies of the detailed agenda.

MINUTES: Minutes of the Executive Committee for the 95th Conference (Littleton, Colorado) were approved as printed in the Agenda Book pages 7-9.

CONFERENCE SITE REPORTS:

The 95th 2YC₃, Arapahoe Community College, Littleton, CO:

There were 75 participants including 33 new members and 12 speakers at this conference.

The 96th 2YC₃, Montgomery Community College, Rockville, MD:

Margot Schumm reported on minor adjustments in the program since one speaker will be unable to attend. Alan Heyn reported that there is room for more persons at the Friday banquet since 60 dinners have been planned. He pointed out that he was concerned that some persons had registered at motels but had not mailed in meeting registrations. It is difficult to predict the number that will later want banquet tickets when attendees don't preregister.

ACS OFFICE OF THE TWO-YEAR COLLEGE REPORT:

Elliott Greenberg first discussed the need for awareness of NSF, ACS and 2YC₃ related activities that are in our interest. Dr. James Bradford, Manager, ACS Office of College Chemistry, then explained that Dr. Bassam Shakhshiri at NSF has indicated that he would like to see as many as 200 funding proposals from two-year colleges as more types of funds become available. Two-year colleges, however, are not currently eligible for instrumentation funding. It is anticipated that more small grants will be made available.

Dr. Annette Rosenblum, manager of ACS Science Policy Analysis, was introduced to the group by Jim Bradford. She reported that they are working to double NSF funding over the next five years, and that the SOCED committee does have input into appropriations. Both research and education interests need funding. An computer accessible bulletin board listing grants is being set up by NSF. Edith asked Jim Bradford to compile newsletter information on these topics.

On an individual basis, interested persons should contact their appropriate congressmen regarding science related funding for two-year colleges. On a group basis, there appears to be a real need for proposal writing workshops to learn how to write effective proposals.

The committee commends Jim Bradford who has been able to effectively use the "Critical Issues..." report at the booth set up at the May AACJC Conference, and in numerous other contacts.

FUTURE MEETING SITES:

Edith's agenda and Ralph's "Working List" of Conferences contained updated information regarding future conferences. These additions and changes were briefly reviewed by the committee. They are as follows:

- 100th Conference: Toronto Date 06/02-04/88 in conjunction with Natl. ACS Mtg. 06/05-11/88. The 2YC₃ Program Co-Chair is Mark Amman, SUNY Ag and Tech. College, Alfred, NY 14802 (607) 587-3690.
- 101st Conference: Purdue Univ., W. Lafayette, IN. (Held in conjunction with 10th Biennial Chem. Educ. Conference.) Program Chairs, Doris Kolb, Bradley Univ., and Tamar Susskind, Oakland C.C. Auburn Hills Campus (303) 853-4325.
- 102nd Conference: Pittsburgh, PA Date 10/14-15/88 No changes.
- 103rd Conference: Kansas City, KS Date 11/18-19/1988 Program Chair is David Klein, Kansas City Kansas C.C., Local Arr. Chair is Sam Crawford, Johnson County C.C., College Blvd. at Quivira Rd., Overland Park, KS 66210, Office (913)-888-8500.
- 104th Conference: Irving, TX Date 04/07-08/89 (Held in conjunction with National ACS Mtg. 04/09-14/1989.) No changes.
- 105th Conference: Cerritos Community College, Date 5/--/89 11110 E. Alondra Blvd. Norwalk, CA 90650-9973 Office (213) 860-2451 Local Arr. Chair is James R. Peter, Cerritos C. C.
- 106th Conference: Jefferson Community College, Date 10/6-7 or 13-14/89 P. O. Box 1036, Louisville, KY 40222 Contact Person: Mrs. Patricia McCoy Brown, Office (502) 584-0181 Ext. 277. Home (502) 425-7606.
- 107th Conference: Late Nov. 1989, Mississippi Gulf Coast Junior College-Jefferson Davis Campus, Switzer Road Gulfport, MS 39507 Notice new zip. Contact Person: James M. Knight, Office (601) 896-3355, Home (601) 875-5884.
- 108th Conference: April 1990, Boston area in conjunction with Natl. ACS Mtg. Ralph will contact Dorothy (Dotty) Stumpf and Muriel Kanter.
- 109th Conference: May or early June, 1990 perhaps jointly with C3. Possible site Capilano College, 2055 Purcell Way, North Vancouver, B. C., V7T 3H5 Contact persons: Penny LeCouteur, Capilano College, (604) 986-1911 and William Wasserman, Seattle Central C. C., Seattle, WA 98122, (206) 587-4080.

TREASURER/COLLEGE SPONSORS REPORT:

John Clevenger, Treasurer, was unable to attend, but his report is included in the Agenda Book, pages 14-15. As of April 9, 1987 the treasurer reports a balance of \$13961.95. We have 101 paid college sponsors for 1987.

MEMBERSHIP REPORT:

Mike Knoll reported that there are now 410 renewed memberships plus 141 new members (including 33 from the Littleton meeting) for a total membership of 551 persons. Only one committee member has not yet paid.

INDUSTRIAL SPONSORS REPORT:

Elliott Greenberg reported that there are 30 industrial sponsors on the list. All but two of these have paid for the current year. Elliott was happy to report renewals by VWR and by Fisher Scientific. Fisher also paid dues to cover previous years. We need to recruit new sponsors for each meeting.

POLICIES AND PROCEDURES:

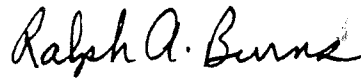
Election ballots were opened and Leo Kling, III, of Tri-Counties Technical College, Pendleton, SC was declared elected as Industrial Sponsors Chair.

For the Treasurer/College Sponsors position, applications have been received from Duane Sell, William Rainey Harper Coll., Algonquin and Roselle Roads, Palatine, IL 60067; Cullen S. Johnson, Cuyahoga Comm. College, Parma, OH 44130-5199; E. J. Zoranski, Atlantic Comm. College, Mays Landing, NJ 08330; and Bill Nickels, Schoolcraft College, Livonia, MI 48152. Qualifications of applicants are to be submitted to Dick Gaglione by October 1, 1987. Ballots will be opened at the November meeting.

Chair-Elect applications and qualifications are to be submitted to Edith Bartley by October 1, 1987.

ADJOURNMENT: The committee was adjourned at 10:10 p.m.

Respectfully submitted,



Ralph A. Burns
Chair-Elect

COMMITTEE ON CHEMISTRY IN THE TWO-YEAR COLLEGE
Montgomery College
Rockville, Maryland
Friday, May 22, 1987

Attendance: Twenty persons attended the open committee meeting, including Robert Antrim, Edith Bartley, Jim Bradford, Ralph Burns, Avery Dennis, John Feldsine, Onofrio Gaglione, Elliott Greenberg, Theo Hufem, Donald Hurff, Cullen Johnson, Muriel Kanter, Michael Knoll, William Mooney, Jr., Fred Nicolai, Wid Painter, Alla Romano, Margot Schumm, Dotty Stumpf, Sue Williamson, and John Winkelmann.

OPENING: Edith Bartley, Chair, called the open meeting to order at 9:00 a.m. and passed around a listing of two-year college chemistry faculty to be checked for any additions, deletions, or errors.

MINUTES: Minutes of the 95th Conference (Littleton, CO) were approved as printed on pages 11-12 of the Agenda Book.

ELECTION RESULTS: Edith reported election results. John Clevenger of Reno, NV (current treasurer) has been elected to serve as Chair-Elect in 1988, Chair in 1989, and Immediate Past-Chair in 1990. Edith also announced that ballots have been opened and Leo Kling, III, of Pendleton, SC has been elected 1989 Industrial Sponsors Chair. Congratulations to these persons.

APPLICATIONS FOR NEW POSITIONS: For the Treasurer/College Sponsors position, Edith announced that applications have been received from Duane Sell, William Rainey Harper Coll., Palatine, IL; Cullen S. Johnson, Cuyahoga Comm. College, Parma, OH; E. J. Zoranski, Atlantic Comm. College., Mays Landing, NJ; and Bill Nickels, Schoolcraft College, Livonia, MI. Applications and qualifications must be submitted to Dick Gaglione by Oct. 1, 1987. Ballots will be opened at the Nov. meeting. Chair-Elect applications and qualifications must be submitted to Edith Bartley by noon, October 1, 1987.

MEETING REPORTS:

The 95th 2YC₃, Arapahoe Community College, Littleton, CO had 75 participants including 33 new members who joined during that conference.

The preliminary report of the 96th 2YC₃, Montgomery College, Rockville, MD was given by Margot Schumm who explained minor adjustments in the program since one speaker will be unable to attend. Alan Heyn explained that tickets are still available for the Friday banquet and Saturday luncheon. He also described shuttle arrangements from the Town Centre Inn to the college.

The 97th 2YC₃ will be held Oct. 16-17, 1987 at Southeast Community College, Lincoln, Nebraska.

MEMBERSHIP REPORT: Mike Knoll reported that there are now 410 renewed memberships plus 141 new members (including 33 from the Littleton meeting) for a total membership of 551 persons. Edith encouraged all persons to also hold membership in the ACS Div. of Chemical Educ. besides 2YC₃ memberships.

TREASURER/COLLEGE SPONSORS REPORT: John Clevenger, Treasurer, was unable to attend, but Edith explained that his report is included in the Agenda Book pages 14-15. As of April 9, 1987 the treasurer reports a balance of \$13961.95. We have 101 paid college sponsors for 1987. Edith explained that if your college is not a College Sponsor, a form is included on p. 17 of the Agenda Book, and the tax exempt I.D. number is on the bottom of the form.

INDUSTRIAL SPONSORS REPORT: Elliott Greenberg reported that there are 30 industrial sponsors on the list. He also reported recent renewals by Fisher Scientific and by VWR. We need to recruit new sponsors for each meeting.

FUTURE MEETING SITES REPORT: Ralph Burns summarized future meeting sites with emphasis on new additions to the list. The status of future meetings follows:

- 97th Conference: Lincoln, NE. 10/16-17/87 John Kenkel, Program Chair.
98th Conference: Jacksonville, FL. 11/13-14/87 L. Bray and W. Massey, Program.
99th Conference: Sacramento, CA. 03/11-12/88 R. Lungstrom, Program Chair.
100th Conference: Toronto 06/02-04/88 in conjunction with Natl. ACS Mtg. 06/05-11/88. 2YC₃ Program Co-Chair is Mark Amman.
101st Conference: Purdue Univ., W. Lafayette, IN. (With 10th Biennial Chem. Educ. Conf.) Doris Kolb and Tamar Susskind, Program Chairs.
102nd Conference: Pittsburgh, PA 10/14-15/88 Barbara Rainard, Program Chair.
103rd Conference: Kansas City, KS 11/18-19/88 David Klein, Program Chair.
104th Conference: Irving, TX 04/07-08/89 (Held in conjunction with National ACS Mtg. 04/09-14/89.) Weldon Burnham, Prog. Chair.
105th Conference: Norwalk, CA, Cerritos C.C. 5/--/89 James Peter, Local Arr. Chr.
106th Conference: Louisville, KY, Jefferson C.C. 10/6-7 or 13-14/89 Patricia McCoy Brown, Contact Person.
107th Conference: Gulfport, MS, Miss. Gulf Coast J. C., Jefferson Davis Campus, Late Nov., 1989, James M. Knight, Contact Person.
108th Conference: Boston, MA April 1990 (With Natl. ACS Mtg.) Dotty Stumpf and Muriel Kanter, Contact Persons.
109th Conference: Possible Site Capilano College, North Vancouver, BC early June 1990 perhaps with C3. Penny LeCouteur, Capilano Coll. and William Wasserman, Seattle Central C.C., Contact Persons.

ACS OFFICE OF THE TWO-YEAR COLLEGE REPORT:

Dr. James Bradford, Manager, ACS Office of College Chemistry, reported on his meeting with AACJC and the "Critical Issues..." report distributed at the booth and also in numerous other contacts. He also described NSF funding programs and explained that Dr. Bassam Shakhshiri at NSF has indicated that he would like to see as many as 200 funding proposals from two-year colleges as more types of funds become available. Two-year colleges, however, are not currently eligible for funding for instrumentation. Cullen Johnson and William T. Mooney, Jr. made some suggestions for proposal writing. It was pointed out that we need proposal writing experience—perhaps a workshop.

OLD AND NEW BUSINESS:

Professional Liability Insurance: Margot Schumm expressed concern over the demise of the ACS Liability Insurance. There appears to be even more liability problems in labs with unexperienced/underprepared students. Bill Mooney made some suggestions regarding a carrier; interested persons should contact him.

Periodic Table: Margot Schumm pointed out the problems with three systems.

Meeting Sites: John Feldsine recommended locating meetings at a site where all participants would stay at the same location to encourage greater interaction.

ADJOURNMENT: The committee meeting was adjourned at 10:00 a.m.

Respectfully submitted,

Ralph A. Burns

Ralph A. Burns, Chair-Elect

MEMBERSHIP REPORT

October 2, 1987


Renewals	439
<u>New Memberships</u>	<u>163</u>
Total	602

September 22, 1987
 FINANCIAL REPORT FOR COCTYC
 From: 1/1/87 To: 9/22/87

Balance forward		\$ 13961.95
<u>Income</u>		
College Sponsors		475.00
Indust. Sponsors		600.00
Individual Membership		954.00
DivChed		2000.00
Interest		368.12
C.D.'s	195.77	
Checking	172.35	
Meetings & Misc.		2111.50
Bozeman booth	93.50	
Denver	1132.00	
Rockville	886.00	
		<hr/>
		\$ 6508.62
<u>Expenses</u>		
Travel		2768.04
Chair	711.99	
Past-chair	467.58	
Chair-elect	405.24	
Treasurer	408.50	
Member. Chair	494.73	
Task Force Rep.	280.00	
Newsletter		561.05
Postage		736.07
Phone		172.20
Office Supplies		14.00
Meetings & Misc.		1519.48
Denver	487.50	
Rockville	886.00	
North York, Can.	145.98	
		<hr/>
		\$ 5770.84
Balance		\$ 14699.73

COLLEGE SPONSORS

We have 101 College Sponsors for 1987. A list follows this report. If your college is not a College Sponsor, please copy and use the application form. Renewals for 1988 are being mailed.



 John V. Clevenger
 Treasurer/College Sponsors

College Sponsors 1987

Mr. W. H. Team
Amarillo College
P.O. Box 447
Amarillo TX 79178

Mrs. Deborah M. Reeder
Anne Arundel Community College
101 College Parkway
Arnold MD 21012

Mr. Jack Surendranath
Bellevue Community College
P.O. Box 92700
Bellevue WA 98008-2037

Dr. Ken Tase
Brazeport College
500 College Drive
Lake Johnson TX 77566

Katherine E. Weisman
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1401 E. Court St.
Flint MI 48902

Mr. William Kamanecky/Sci Dept
Cayuga Community College
Franklin Street
Auburn NY 13021-3099

Sr. Mary Erwin Huse Skamo
Ancilla Domini College
Donaldson IN 46513

Mr. Robert Ingram
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P.O. Box 929
Yuma AZ 85364

Mr. Laurence G. Ladewig
Black Hawk College
6600 34th Ave
Moline IL 61265

Dr. Vincent Sellme
Burlington County College
Pemberton-Browns Mills Rd
Pemberton NJ 08068

Mr. D. Buck
Cape Fear Technical Institute
411 N. Front Street
Wilmington NC 28401-3993

Prof. Brian Earle
Cedar Valley College
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Lancaster TX 75134

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Dr. Ralph R. Kaiser
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Warwick RI 02886

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Greenville MT 59320

Dr. Douglas E. Zacek
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La Plata MD 20646

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Grayslake IL 60030

Dr. Rex Widener
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Prof. John Henderson
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Mr. Vern L. Wolfmeyer
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Hutchinson KS 67501

Taylor Pancoast or Charles Brininger
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Mr. Joseph Butler
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Richard E. Jones, Jr.
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Crystal Lake IL 60014

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Miami FL 33167

Ms. Dorothy A. Stumpf
Middlesex Community College
Springs Road
Bedford MA 01730

Mrs. Pat Flath
Paul Smith's College
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Paul Smiths NY 12970

Dr. Elliott Greenberg
Prairie State College
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Chicago Heights IL 60411

Mrs. Theodora Edwards
Rancho Santiago College
17th at Bristol St.
Santa Ana CA 92706

Dr. Anne Hinter
Roane State Community College
Patton Ln.
Harriman TN 37746

Mr. Garrison Lewis
SUNY Morrisville Ag & Tech. College
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Morrisville NY 13408

Mr. Dale Heuck
Sauk Valley College
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Chemistry Department Chair
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Middle Georgia College
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Mr. Gerard R. Nobiling
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Mr. Jeff Koch
Muscatine Community College
152 Colorado
Muscatine IA 52751

Mr. John Douglas
New Mexico State University
Box 477
Alamogordo NM 88310

Mr. Warren Eidsness
Normandale Community College
9700 France Ave. S
Bloomington MN 55431

Mr. Don Langr or Mr. Don DePrenger
North Iowa Area Community College
500 College Drive
Mason City IA 50401

Mr. Ron DiStefano
Northampton County Area Comm. Coll
3835 Green Pond Rd.
Bethlehem PA 18017

Dr. Jerry Maas
Oakton Community College
1600 E. Golf Rd
Des Plaines IL 60016

William Wesserman or Herb Bryce
Seattle Central Community College
1701 Broadway
Seattle WA 98155

Dr. Richard F. Jones
Sinclair Community College
444 W. Third St.
Dayton OH 45402

Ed Heath
Southwest Texas Jr. College
Garner Field Road
Uvalde TX 78801

Dr. Donna Friedman
St. Louis Comm. Coll at Florissant Valley
3400 Pershall Rd.
St. Louis MO 63135

Mr. Charles Yates
State Technical Institute at Memphis
5983 Macon Cove
Memphis TN 38134

Mrs. Edith Bartley
Tarrant County Jr. Coll - South Campus
5301 Campus Dr.
Fort Worth TX 76119

Mr. Gordon Harrach
Nebraska Western College
1601 E. 27th
Scottsbluff NE 69351

Mr. Onofrio Gaglione
New York City Technical College
300 Jay St.
Brooklyn NY 11201

Dr. Kenneth J. Wright
North Idaho College
1000 W. Garden Ave
Coeur D'Alene ID 83814

Prof. Floyd King
North Lamar College
5001 MacArthur Blvd
Irving TX 75038

Prof. Tamar Suskind
Oakland Comm. Coll - Auburn Hills Campus
2900 Featherstone Rd.
Auburn MI 48057

Prof. Robert Kiebertz
Olympic College
16th and Chester
Bremerton WA 98310

Mr. Howard Vanderbilt
Sierra College
5000 Rocklin Rd
Rocklin CA 95677

Chemistry Dept. Chair
Southern Arkansas U - El Dorado Branch
300 South West Ave
El Dorado AR 71730

Lucy Pryde
Southwestern College
900 Otay Lakes Rd.
Chula Vista CA 92010

Mr. Ralph Burns
St. Louis Community College-Meramec
11333 Big Bend Blvd
St. Louis MO 62122

Dr. John Mitchell
Tarrant County Jr. Coll - NE Campus
Hurst TX 76053

Prof. D. Giersh
Triton College
2000 Fifth Avenue
River Grove IL 60171

Dr. John V. Clevenger
Truckee Meadows Community College
7000 Dandini Blvd
Reno NV 89512

Dr. Mary C. Lu
Walters State Community College
500 S. Davy Crockett Parkway
Morristown TN 37814

Chemistry Dept. Chair
William Rainey Harper College
Algonquin & Reselle Rds
Palatine IL 60067

Mr. Jay Bardole
Vincennes University
1001 N. 1st Street
Vincennes IN 47591

Mr. Thomas R. Clark
Westark Community College
P.O. Box 3049
Fort Smith AR 72913

COMMITTEE ON CHEMISTRY IN THE TWO-YEAR COLLEGE

Division of Chemical Education, American Chemical Society

APPLICATION FOR COLLEGE SPONSORSHIP

College Name _____ Date _____

Address: (Street) _____

(City) _____ (State) _____ (Zip) _____

Contact Person _____

Dr. Mr. Ms. Miss Mrs.

Title _____

Telephone (Area code) _____ (Number) _____ (Ext) _____

Address (if different from above) _____

All questions and correspondence concerning the 2YC₃ College Sponsorship should be directed to:

John V. Clevenger
Truckee Meadows Community College
7000 Dandini Boulevard
Reno, NV 89512

Phone: (702) 673-7221

Please make check for \$25 payable to:

COMMITTEE ON CHEMISTRY IN THE TWO-YEAR COLLEGE

and return with the completed application to:

JOHN V. CLEVINGER

at the above address.

Thank you for your sponsorship.

We are a tax exempt organization. Our tax I.D. # is 23-7169683.

Industrial Sponsors of the
Two-Year College Chemistry Conference

An oral and written report will be presented during the meeting.

TWO-YEAR COLLEGE CHEMISTRY CONFERENCE SITES
Updated Sept. 1987 by Ralph A. Burns, Chair-Elect

98th CONFERENCE

- Nov. 13-14, 1987 - Florida Community College at Jacksonville, North Campus
4501 Capper Road, Jacksonville, FL 32218
Program Theme: - What Should We Teach?
Program Co-Chairs- Wendell Massey, Florida Comm. College at Jacksonville,
North Campus, (904) 766-6752 or (904) 766-6732
- Larry Bray, Miami-Dade Community College, South Campus
1101 SW 104 St., Miami, FL 33176, (305) 347-2491
Local Arrangements Chair:
- Wendell Massey, Florida C. C. at Jacksonville, North Campus,
4501 Capper Road, Jacksonville, FL 32218, (904) 766-6752
Local Industrial Sponsors Coordinator:
- William Marsico, Florida C. C. at Jacksonville, Kent Campus,
3939 Roosevelt Blvd., Jacksonville, FL 32205
(904) 387-8170 or 387-8123

99th CONFERENCE

- Mch. 11-12, 1988 - American River College, 4700 College Oak Dr.
Sacramento, CA 95841
(916) 484-8464
Program Chair: - Richard Lungstrom, American River College, (916) 484-8464
Local Arrangements Chair:
- Dr. Danny White, American River College, (916) 484-8385
Local Industrial Sponsors Coordinator:
- TBA

100th CONFERENCE WITH 15th C₃

(Plan a vacation for this joint meeting with C₃, College Chemistry Canada.)

- June 2-4, 1988 - Seneca College, 1750 Finch Ave. East, North York, Ontario,
Canada M2J 2X5 (North York is in metropolitan Toronto.)
2YC₃-C₃ Liaison Person:
- Shahid Jalil, John Abbot College, P. O. Box 2000
Ste. Anne de Bellevue, PQ, H9X 3L9
2YC₃ Program Chair:
- Mark Amman, SUNY Ag Tech. College, Alfred, NY 14802
College: (607) 587-3690 or -3694
Home: (607) 478-8677
Local Arrangements Chair: TBA
Local Industrial Sponsors Coordinator: TBA

- June 5-11, 1988 - 3rd CHEMICAL CONGRESS OF NORTH AMERICA and
195th ACS NATIONAL MTG., Toronto, Ontario, Canada

101st CONFERENCE

(In conjunction with the 10th Biennial Conference on Chemical Education)

- 7/31 to 8/04/88 - Purdue University, West Lafayette, IN 47907, (317) 494-5465
2YC₃ Program Co-Chairs:
- Doris Kolb, Dept. of Chem., Bradley Univ., Peoria IL 61625
- Tamar Susskind, Oakland Comm. Coll., Auburn Hills Campus
Auburn Hills, MI 48057 (313) 853-4325

102nd CONFERENCE

- Oct. 14-15, 1988 - Community College of Allegheny, Allegheny Campus
Bob Ridge Ave., Pittsburgh, PA 15212
- Program Chair: - Barbara Rainard, Community College of Allegheny,
Allegheny Campus, Bob Ridge Ave., Pittsburgh, PA 15212
(412) 237-2649 or (412) 237-2647
- Local Arrangements Chair:
- William McVeagh, Community College of Allegheny,
Allegheny Campus, (412) 237-2687
- Local Industrial Sponsors Coordinator:
- Joanne McCalip, Community College of Allegheny,
Allegheny Campus, (412) 237-2535

103rd CONFERENCE

- Nov. 18-19, 1988 - Kansas City Kansas Community College
7250 State Ave., Kansas City, KS 66112
- Program Chair: - Dave Klein, Kansas City Kansas Community College
7250 State Ave., Kansas City, KS 66112 (913) 334-1100
- Local Arrangements Chair:
- Sam Crawford, Johnson County Comm. Coll., College Blvd. at
Quivira Rd., Overland Park, KS 66210 (913) 888-8500
- Local Industrial Sponsors Coordinator: TBA

104th CONFERENCE

(Preceding the ACS National Meeting, Dallas, April 9-14, 1989)

- April 7-8, 1989 - North Lake College, 5001 N. MacArthur Blvd.
Irving, TX 75038
- Program Chair: - Weldon Burnham, Richland College
(tentative) 12800 Abrams Rd., Dallas, TX 75243
(214) 238-6045
- Local Arrangements Chair:
- Floyd King, North Lake College
5001 N. MacArthur Blvd., Irving, TX 75038
(214) 659-5358
- Local Industrial Sponsors Coordinator:
- Chuck Gonzalez, North Lake College
5001 N. MacArthur Blvd., Irving, TX 75038
(214) 659-5320

105th CONFERENCE

- May 19-20, 1989* - Cerritos Community College
11110 E. Alondra Blvd.
Norwalk, CA 90650-9973
- Program Chair: - Christine (Chris) Romer, Cerritos Community College
11110 E. Alondra Blvd., Norwalk, CA 90650-9973
(213) 860-2451
- Local Arrangements Chair:
- James R. Peter, Chairman, Dept. of Chem., Cerritos C. C.
11110 E. Alondra Blvd., Norwalk, CA 90650-9973
- Local Industrial Sponsors Chair: TBA

* New information is underscored _____

106th CONFERENCE

Oct. 13-14, 1989 - Jefferson Community College

P. O. Box 1036
Louisville, KY 40202
(502) 584-0181 Ext. 204 (Chem. Office)

Program Chair: - open

Local Arrangements Chair:

- Mrs. Patricia McCoy Brown, Jefferson Community College
P. O. Box 1036, Louisville, KY 40202
Office: (502) 584-0181 Ext. 277 Home: (502) 425-7606

Local Industrial Sponsors Chair:

- John Gibson, Jefferson Comm. Coll., (address listed above)
Office: (502) 584-0181 Ext. 263

107th CONFERENCE

Nov. 17-18, 1989 - Mississippi Gulf Coast Junior College,

Jefferson Davis Campus, Switzer Road
Gulfport, MS 39507 (601) 896-3355

Program Chair: - James M. Knight, Miss. Gulf Coast JC, Jefferson Davis Campus

Office: (601) 896-3355 Home: (601) 875-5884

Local Arrangements Chair: open

Local Industrial Sponsors Chair: open

Comments: Excellent location near beach, motels, restaurants, special rates.
Near Biloxi airport (flights to Atlanta, Memphis); limo. to New Orleans Airport.

108th CONFERENCE

(Preceding the ACS National Meeting, Boston, April 22-27, 1990)

Apr. 20-21, 1990 - Roxbury Community College (Tentative site)

625 Huntington Ave., Boston MA 62115

Program Chair: - (tentative) Dorothy (Dotty) Stumpf, Middlesex Comm. College,
Springs Rd., Bedford, MA 01730, (617) 275-8910 Ext 287

Local Arrangements Chair:

- (tentative) Muriel Kanter, Roxbury Community College
625 Huntington Ave., Boston, MA 62115, (617) 734-1960

Local Industrial Sponsors Chair: open

109th CONFERENCE

Late May or

Early June, 1990 - Possible site at Vancouver, B. C., Canada

Contact Person: - William Wasserman, Seattle Central Community College
Seattle, WA 98122, (206) 587-4080

Local Arrangements Chair: open

Local Industrial Sponsors Chair: open

* New information is underscored _____

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All 2YC₃ members are urged to make suggestions regarding meeting sites, program personnel, themes, and programming suggestions in writing to Executive Committee members and Program Chairs of the specific conferences. 2YC₃ can function more effectively to serve all community colleges when all persons participate. We welcome your suggestions.



TWO YEAR COLLEGE CHEMISTRY CONFERENCE
DIVISION OF CHEMICAL EDUCATION
AMERICAN CHEMICAL SOCIETY

Mrs. Edith Bartley
1987 2YC3 Chair

Mailing address:

7424 Continental Trail
Smithfield, TX 76180

1 June, 1987

Dr. Annette Rosenblum
American Chemical Society
1155 Sixteenth St., N. W.
Washington, D. C. 20036

Dear Dr. Rosenblum,

As Chair of the Committee on Chemistry in the Two-Year College, I would like to express our appreciation to you for giving up an evening to talk to the Executive Committee. The information that you gave was most enlightening. Most of us were unaware of the extent of available information from ACS.

Hopefully 2YC3 newsletters will be able to publish facts concerning legislation which affects science and education. A short paragraph would give our members a different method for receiving news. It would be nice to have something to publish in one or both of this Fall's issues. The print deadline dates are June 20 for the August mailing and July 20 for the September mailing.

Thank you again for your time and helpful presentation.

Sincerely,

A handwritten signature in cursive script that reads "Edith Bartley".

Edith Bartley
1987 2YC3 Chair

pc: Ms. Kathi Ream
bc: Jim Bradford

NATIONAL SCIENCE FOUNDATION

Permit Issued Under the Antarctic Conservation Act of 1978; Arthur L. DeVries et al.

AGENCY: National Science Foundation.

ACTION: Notice of permit issued under the Antarctic Conservation Act of 1978, Pub. L. 95-541.

SUMMARY: The National Science Foundation (NSF) is required to publish notice of permits issued under the Antarctic Conservation Act of 1978. This is the required notice of permits issued.

FOR FURTHER INFORMATION CONTACT: Charles E. Myers, Permit Office, Division of Polar Programs, National Science Foundation, Washington, DC 20550.

SUPPLEMENTARY INFORMATION: On July 24, 1987, the National Science Foundation published a notice in the Federal Register of permit applications received. Permits were issued to the following individuals on September 1, 1987.

Arthur L. DeVries
G.L. Kooyman
Gary D. Miller
D.B. Sigff
Wayne Z. Trivelpiece

Charles E. Myers,
Permit Office, Division of Polar Programs
[FR Doc. 87-20990 Filed 9-10-87; 8:45 am]
BILLING CODE 7555-01-M

Research Experiences for Undergraduates Program

Inquiries. Questions not addressed in this publication may be directed to the NSF staff by contacting: Research Experiences for Undergraduates Program, Office of Undergraduate Science, Engineering and Mathematics Education, Directorate for Science and Engineering Education, Room 639, National Science Foundation, Washington, DC 20550, (202) 357-7051.

Research Experiences For Undergraduates Program (REU) is an integral part of NSF's overall plan to strengthen undergraduate science, engineering and mathematics education throughout the United States. This NSF plan also includes support for undergraduate laboratory development, faculty enhancement, curriculum development in mathematics and engineering, and the Research in Undergraduate Institutions Program (RUI) for FY 1988.

REU will be centrally coordinated by the newly established Office of Undergraduate Science, Engineering, and Mathematics Education (USEME), in the Directorate for Science and Engineering Education, but proposals will be managed locally in the research programs throughout the NSF.

Research Experiences for Undergraduates

I. Program Description

A. Purpose and Scope

One of the National Science Foundation's principal goals is to assure an adequate supply of high quality mathematicians, scientists and engineers for the future. This requires continuing efforts to attract talented students into research careers in these fields, and to help ensure that they receive the best education possible. The undergraduate years are critical in the educational sequence, as career choice points and as the first real opportunities for in-depth study.

There is wide-spread agreement¹ that active research experience is one of the most effective techniques for training undergraduates for careers in mathematics, science and engineering, and that too few such experiences are now available. NSF has established the *Research Experiences for Undergraduates Program* (REU) to meet this need.

REU plans to provide opportunities annually to several thousand undergraduate students to participate in active mathematics, science and engineering research experiences. REU projects will involve students in meaningful ways in either ongoing research programs or research projects specially designed for this purpose.

NSF is particularly interested in increasing the participation in research of women, minority² and disabled students. Projects involving students who are members of these groups are particularly solicited.

Although the categories of awards that are described in this announcement are expected to include the majority of projects supported through the REU program, additional mechanisms for providing undergraduate research experiences will be considered by the NSF.

Proposals are invited for support of projects that typically will fit into two major categories: (1) *REU Sites* and (2) *REU Supplements*.

¹ *Undergraduate Science, Mathematics and Engineering Education*. Report of the National Science Board Task Committee on Undergraduate Science and Engineering Education, National Science Foundation, March 1986; *National Priorities for Undergraduate Science and Engineering Education*, National Higher Education Associations Task Force, American Council on Education, 1985.

• *Sites* grants will be based on independent proposals to initiate and conduct undergraduate research participation projects for a number of students appropriate to the discipline and the setting. Most REU Sites projects are expected to be within the scope of a single discipline and/or single academic department. However, interdisciplinary proposals are also acceptable, but multiple discipline or multiple department proposals without a common project focus or orientation are discouraged.

• *Supplements* to ongoing NSF research grants to provide research experiences for a small number of undergraduate students are also encouraged.

Projects may be carried out during the summer months, during the academic year, or both. The Foundation will consider requests for support of one, two or three years duration.

B. Eligibility Criteria and Limitations

1. *Eligible institutions.* All U.S. institutions conducting research in the disciplines normally supported by NSF are eligible to apply. Thus, proposals will be accepted from colleges and universities, from such nonacademic research institutions as government or industrial laboratories, or from combinations thereof. There is no restriction on the number of proposals that may be submitted per institution.

2. *Eligible fields.* All science and engineering disciplines normally supported by NSF are eligible for REU support.

² For the purpose of this announcement, minorities are defined as members of those racial and ethnic groups underrepresented in science and engineering: American Indian, Blacks, Hispanics, Native Alaskan or Native Pacific Islander.

3. Eligible Individuals. Principal Investigator. A single individual should be designated as Principal Investigator. This individual will be responsible for overseeing all aspects of the award. However, it is expected that additional investigators will be involved in many of these projects, particularly in projects involving development and operation of REU Sites.

Student participants. Student participants must be citizens or permanent residents of the United States and its possessions.

4. Eligible activities and costs. REU award costs, expected to average \$4,000 per student for Sites and somewhat less for Supplements, may include stipends for students, salaries of involved faculty, relevant student housing costs, indirect costs, and a modest allowance for supplies. For example, an REU Site award involving 10 students would be on the order of \$40,000, while a typical REU Supplement involving one or two students would average less than \$4,000 per student. Student stipends for full time summer activity should be at least \$2,000, for either type of award, with pro rata equivalent stipends for part-time academic year participation.

C. Deadlines

Proposals for the support of REU Sites are due no later than December 1, 1987. Award notification will be made to the extent possible by late February, 1988.

Proposals for REU Supplements will be accepted at any time, and require 2-3 months processing time. Supplement requests should be submitted as early in the fiscal year as possible.

II. Preparation and Submission of Proposals

A. REU Sites

Funds for the establishment of REU Sites may be requested from any of NSF's major research directorates: Biological, Behavioral and Social Sciences; Computer and Information Science and Engineering; Engineering; Geosciences; and Mathematical and Physical Sciences.

Proposals should be prepared following the guidelines contained in the NSF document "Grants for Research and Education in Science and Engineering" (NSF 83-57, rev. 1/87) and the following instructions. Fifteen copies of the proposal should be submitted. Each copy of the proposal should contain:

—The Cover Sheet (found in Appendix II³ of this announcement.

clearly indicating the NSF research directorate and/or division to which the proposal is directed)

—The Budget form 1030 (found in Appendix III)³

—The Project Summary Form (found in Appendix IV)³

—The Current and Pending Support Form (found in Appendix V)³

—Statement of prior support. If either the Principal Investigator or the Co-principal Investigator received support from NSF's REU Program in 1986, the proposal must include a section entitled "Results from prior NSF Support". This section must describe the earlier REU project and its outcomes in sufficient detail to permit reviewers to reach an informed conclusion regarding the value of the results achieved. The following information must be included in this summary statement:

- The NSF award number, amount, and period of support;
- Title of the project;
- A summary of the results of the completed work. (To facilitate review, this summary must not exceed for REU—three double-spaced pages); and
- A list of publications and/or formal presentations acknowledging the NSF award (copies of such papers are not to be submitted with the proposal).

Each proposal should reflect the unique combination of the proposing institution's interests and capabilities. Cooperative regional arrangements among institutions will be considered so that a project might increase the quality or availability of undergraduate research experiences.

REU Sites projects must have a well defined common focus. This is usually achieved within the scope of a single discipline or academic department, although an interdisciplinary proposal with cohesively integrated projects is acceptable. In general, multiple-discipline or multiple-department proposals are not encouraged.

The proposal should discuss the features of the proposed project in sufficient detail that it can be evaluated in accordance with the goals of the REU program and the criteria articulated above. The narrative description of the program should not exceed 15 double-spaced pages in length.

Nature of student activities. NSF believes undergraduate research experiences have their greatest impact in situations that lead the participants from a relatively dependent status to an independent one as great as their competence warrants. In this context, proposals must present plans that will ensure the regular development of student-faculty interaction and student-student communication. Proposals

should address the philosophy of the approach taken to undergraduate research training, and should provide detailed descriptions of examples of projects in which students will become involved.

The research environment. The facilities and equipment available to support these undergraduate research experiences should be summarized. A tabular summary or similar indication of graduates continuing their education at the graduate level may be incorporated here.

Student participants. Student recruitment and selection processes and criteria should be clearly described. A major goal of the program is to involve students in research who might not otherwise have the opportunity, particularly those from institutions where research programs are limited. This especially includes women, minority, and disabled students. For this reason, projects whose student participants include significant fractions from outside the host institution, and that present convincing plans for involving underrepresented student groups will receive special consideration in the award selection process.

The number of students per project should be appropriate to the institutional setting and to the manner in which research is conducted in the discipline. However, developing collegial relationships and interactions is an important part of the project opportunity. Therefore the Foundation expects that the norm for supported projects will be about 8 students, and proposal involving fewer than 4-6 students are discouraged.

Budget. The proposal should include a detailed project budget and budget justification, as described in NSF 83-57, rev. 1/87. Use the NSF Form 1030 in Appendix III. As a guide to budget development, student stipends for summer projects are expected to be at least \$2,000 with academic year stipends comparable on a pro rata basis. All student costs should be entered at line F. of Form 1030. Total costs are expected to average around \$4,000 per student. Indirect costs are allowed at a flat rate of 25% of student stipends. Institutional commitment to the project should be clearly described and identified.

Biographical sketches and individual support. A biographical sketch (not to exceed 1 page) for each of the key personnel and list of recent publications (last five years), involving and identifying undergraduate authors, should be included. An asterisk should be used to identify undergraduate students who served as co-authors. A

³ Appendices are not published in this document. They are available from the National Science Foundation. See address for inquiries at the beginning of this document.

table must be provided which summarizes each individual's current and pending research support from all sources.

Note: The Principal Investigator must have submitted NSF form 98A for all completed NSF funded projects.

Proposals must be received in the Foundation by 5:00 p.m. on December 1, 1987 to insure inclusion in the competitive review process established for this program.

Materials required:

15 legible copies of the complete proposal;

One copy of NSF form 1225 (found in Appendix I * of this announcement) attached to the signature copy of the proposal only;

Three sets of (extra) forms, each stapled into a unit and containing One copy of the Cover Sheet One copy of the Budget, and One copy of the Project Summary Form.

These materials should be submitted to: Data Support Services Section, REU, National Science Foundation, Room 223, 1800 G St., NW., Washington, DC 20550.

B. REU Supplements

Funding may be requested from any of NSF's major directorates to supplement an ongoing NSF research grant or contract. As with other supplement requests, these should be sent directly to the cognizant NSF Program Director.

Requests for supplemental funding should be in the form of a letter, signed by both the principal investigator and the appropriate institutional official. This letter should state clearly that this is a REU Supplement request, and should articulate in some detail the form and nature of the prospective student(s)'s involvement in the research project(s). If the student(s) has not been preselected, a brief description of the selection process and criteria should be included. If the student(s) has been preselected, the grounds for selection and a brief biographical sketch of the student should be included. Normally funds will be available for up to two students, but exceptions will be considered for training additional minority, physically disabled and women students.

The request letter should be accompanied by a signed budget page including information about the funds requested and their proposed use. Use NSF Form 1030 in Appendix III for this purpose. Attach the letter of request and form 1030 to the Cover Sheet (Appendix

* Appendix is not published with this document. It is available from the National Science Foundation. See address for inquiries at the beginning of this document.

of this Announcement) and a Project Summary Form (Appendix IV) and mail to the appropriate NSF Program Director.

III. Proposal Evaluation

REU Sites proposals will be evaluated by external merit review, involving scientists, engineers and mathematicians drawn from the academic and industrial community.

REU Supplements proposals will be evaluated by NSF program staff.

The same general evaluation criteria will be applied to all REU proposals:

- The appropriateness and value of the educational experience for the student(s), particularly the appropriateness of the research project(s) for undergraduate involvement and the nature of student participation in these activities.
- The quality of the supervisor(s) and attendant facilities, including any specialized equipment and its availability to student participants, and the proposer's experience with undergraduate research activities.
- The overall merit of the research activities.

Additional criteria will be applied to proposals to establish REU Sites:

- The adequacy of procedures for selecting participants, and for matching selected participants with research supervisors;
- The quality of plans for student preparation and follow-through designed to promote continuation of student interest and involvement in research;
- The effectiveness of arrangements for managing the project;
- The record of the institution in motivating students to pursue careers in mathematics, science or engineering;
- The degree of institutional commitment to the project.

IV. NSF Contacts

General inquiries about REU may be directed either to the Office of Undergraduate Science, Engineering, and Mathematics Education at 1800 G St. NW., Washington, DC 20550, telephone 202 357-7051, or to the relevant NSF research program.

Inquiries related specifically to some research aspects of a particular proposal should be directed to the relevant research program.

Key NSF organizational contact telephone numbers are as follows: Office of Undergraduate Science, Engineering, and Mathematics Education: 202-357-7051. Biological, Behavioral, and Social Sciences: 202-357-9880.

Computer and Information Science and Engineering: 202-357-7936.
Engineering: 202-357-5102.
Geosciences: 202-357-7815.
Mathematical and Physical Sciences:
Astronomical Sciences: 202-357-7622.
Chemistry: 202-357-7503.
Materials Research: 202-357-9737.
Mathematical Sciences: 202-357-3695.
Physics: 202-357-7811.
Scientific, Technological, and International Affairs: 202-357-7560.

V. Other Programs

NSF Guide to Programs (NSF 87-57) briefly describes all Foundation programs, most of which are open to all institutions. It is available at most institutions or may be obtained at no cost by contacting the Forms and Publications Unit, Room 232, NSF, Washington, DC 20550 (202/357-7861). Some programs of special interest to undergraduate faculty are described below.

- The NSF has several programs directed toward improving *precollege* science, mathematics and technology education. In most cases, college and university faculty write proposals and direct the projects supported by these programs. For information on *Applications of Advanced Technologies, Informal Science Education, Instructional Materials Development, or Research in Teaching and Learning*, contact the Division of Materials Development, Research and Informal Science Education, Room 835, NSF, Washington, DC 20550 (202/357-7452). For information on *Science and Mathematics Education Networks, Teacher Preparation, Teacher Enhancement, or Presidential Awards for Excellence in Science and Mathematics Teaching*, contact the Division of Teacher Preparation and Enhancement, Room 635, NSF, Washington, DC 20550 (202/357-7073).

- Information on *Graduate Research Fellowships and Minority Graduate Research Fellowships* may be obtained by contacting the National Research Council, 2101 Constitution Avenue, Washington, DC 20418.

- The *Undergraduate Faculty Enhancement Program* (UFE) offers Grants for Undergraduate Faculty Seminars and Conferences provide opportunities for groups of faculty to learn about new techniques and new developments in their fields. Awards are made to conduct seminars, short courses, workshops or similar activities for groups of faculty members from outside the grantee institution. For further information about the the Undergraduate Faculty Enhancement

Program, contact the Office of Undergraduate Science, Engineering, and Mathematics Education, Room 639, NSF, Washington, DC 20550 (202/357-7051).

- Through *Research Opportunity Awards* (ROA), faculty members at institutions with limited research opportunities may work with investigators who already hold or are applying for an NSF research grant. The experience gained under ROA may help the faculty member from the participating institution to become more competitive in submitting an independent research proposal, and may provide experience that will be reflected in improved teaching at the home institution. Full-time faculty members interested in ROA collaborations must make their own arrangements with a host investigator and institution. Formal application to NSF is made by the host institution as part of an initial proposal to NSF or, if an award already is in progress, as a supplement to that award. For further information about Research Opportunities Awards, contact Research Opportunities Awards Program, Room 1225, NSF, Washington, DC 20550 (202/357-7456).

- The *Research in Undergraduate Institutions* (RUI) activity is part of the Foundation's effort to broaden the base for science and engineering research and to enhance the scientific and technical training of students. The objectives of the RUI activity are to strengthen the research environments in academic departments that are oriented primarily to undergraduate education in science and engineering, and to promote the coupling of research and education at predominantly undergraduate institutions. RUI provides support for research and research equipment for investigators in non-doctoral departments in predominantly undergraduate institutions. RUI proposals are evaluated and funded on a competitive basis by NSF's research programs. For further information contact the Division of Research Initiation and Improvement, Room 1225 NSF, Washington, DC 20550 (202/357-7456).

- NSF's *Facilitation Awards for Handicapped Scientists and Engineers* (FAH) activity enhances opportunities for disabled individuals to participate in research. Funds are provided to purchase special equipment, modify equipment, or provide other services required specifically for the work undertaken on an NSF-supported project (see NSF 84-62, Rev 5-87). Funds from regular program budgets are provided for handicapped senior personnel, other

professionals, and students, as a supplement to an existing award or as part of a new award. General inquiries may be made to the Coordinator, Facilitation Awards for Handicapped Scientists and Engineers, Room 1225, NSF, Washington, DC 20550 (202/357-7456).

- The *Minority Research Initiation Program* (MRI) supports research by minority scientists and engineers who hold full-time faculty or research-related positions, who (1) are members of ethnic minority groups that are significantly underrepresented in the science and engineering career pool; (2) have not previously received Federal research support as faculty members; and (3) wish to initiate research efforts on their campuses, thereby increasing their ability to compete successfully for other research support. Information about programs for minority scientists and engineers may be obtained from the MRI Program Director, Room 1225, NSF, Washington, DC 20550 (202/357-7350).

- The *Visiting Professorships for Women Program* (VPW) enables experienced women scientists and engineers to undertake advanced research at a host institution—a university or 4-year college which has the necessary facilities. In addition to her research responsibilities, the visiting professor undertakes lecturing, counseling and other activities to increase the visibility of women scientists in the academic environment of the host institution, and to provide encouragement for other women to pursue science, mathematics or engineering careers. Additional information may be obtained by contacting the VPW Program Director, Room 1225, NSF, Washington, DC 20550 (202/357-7734).

- The *Research Opportunities for Women Scientists and Engineers Program* (ROW) is designed to provide opportunities for independent research for women who previously have not been principal investigators, or who are reentering the research community. Additional information may be obtained by contacting the ROW Coordinator, NSF, Washington, DC 20550 (202/357-7734).

- The *Undergraduate Curriculum Development Program* includes two components: Engineering Curriculum Development and Calculus Curriculum Development.

—The *Undergraduate Engineering Curriculum Development Program* is designed to revise and improve undergraduate engineering education. There is a pressing need to revise the curricula of undergraduate engineering

education with a view toward more emphasis on the laboratory experience and on technology driven fields such as design, manufacturing, and computer integrated engineering. There is also a need to explore the use of new technologies to improve the quality and productivity of the undergraduate engineering education system.

Additional information about this program may be obtained from the Undergraduate Engineering Curriculum Development Program, Room 1238, NSF, Washington, DC, 20550 (202/357-9834).

—The *Division for Mathematical Sciences Undergraduate Curricular Program* supports proposals that will have significant impact on the nature of calculus instruction in this nation through the development of model curricula and prototypical instructional materials. For additional information contact the Division of Mathematical Sciences, Room 339, NSF, Washington, DC 20550 (202/357-9669).

- MOSIS is a joint NSF/DARPA Program that allows qualifying universities to use the DARPA fast turnaround VLSI implementation facility as part of university based research and educational programs. Students taking undergraduate VLSI design courses can now have digital systems that they design, fabricated and packaged and returned to them for testing and experimentation. For more information, contact the Division of Microelectronic Information Processing Systems, Room 504, NSF, Washington, DC 20550 (202/357-7853).

- The goal of the *Instrumentation and Laboratory Improvement Program* is to improve the quality of the undergraduate curriculum by supporting projects to develop new or improved instrument-based undergraduate laboratory and/or field courses in science, mathematics or engineering. For additional information contact the Office of Undergraduate Science, Engineering and Mathematics Education, Room 639, NSF, Washington, DC 20550 (202/357-7051).

- The *Career Access Opportunities in Science and Technology for Women, Minorities and the Disabled* is an undergraduate program that supplements efforts at the pre-college level to address the underrepresentation of women, minorities and the disabled in the Nation's ranks of science and engineering professionals. There are two activities:

—*Comprehensive Projects for Minorities* supports the establishment of regional centers designed to increase the minority presence in science and engineering and to strengthen such

efforts in institutions with significant minority enrollments, and

—*Prototypical Model Projects for Women, Minorities and the Disabled* encourages institutions to create special outreach programs for these target audiences.

For additional information, contact the Office of Undergraduate Science, Engineering, and Mathematics Education, NSF, Washington, DC 20550 (202/357-7051).

The Foundation welcomes proposals on behalf of all qualified scientists and engineers, and strongly encourages women, minorities, and the disabled to compete fully in any of the programs described in this document.

In accordance with Federal statutes and regulations and NSF policies, no person on grounds of race, color, age, sex, national origin, or disability shall be excluded from participation in, denied the benefits of, or be subject to discrimination under any program or activity receiving financial assistance from the National Science Foundation.

NSF has TDD (Telephonic Device for the Deaf) capability which enables individuals with hearing impairment to communicate with the Division of Personnel and Management for information relating to NSF programs, employment, or general information. This number is (202) 357-7492.

The Foundation provides awards for research in the sciences and engineering. The awardee is wholly responsible for the conduct of such research and preparation of the results for publication. The Foundation, therefore, does not assume responsibility for such findings or their interpretation.

Catalogue of Federal Domestic Assistance Numbers:
47.041 Engineering
47.049 Mathematical and Physical Sciences
47.050 Geosciences
47.051 Biological, Behavioral and Social Sciences
47.053 Scientific, Technological and International Affairs
47.070 Computer and Information Sciences and Engineering

Animal Welfare

If any REU activity is likely to involve experiments using non-human vertebrate animals or in maintaining such animals in captivity, the "Animal Welfare" block on the cover sheet must be checked. In such proposals, the narrative also must contain an assurance that the proposing institution complies with the relevant guidelines issued by the National Institutes of

Health in the *Guide for the Care and Use of Laboratory Animals* (NIH Publication 85-23, Revised 1985). The particular attention of proposers is directed to "U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training" to be found in the appendix to that Guide. Individuals desiring a copy of these Guidelines can obtain one from the Division of Research Services, Building 31, Room 4B59, National Institutes of Health, 9000 Rockville Pike, Bethesda, MD 20892. (NSF does not maintain a supply of this document.)

Dated: September 2, 1987.

Robert F. Watson,
Acting Head, Office of Undergraduate Science, Engineering and Mathematics Education.

[FR Doc. 87-20644 Filed 9-10-87; 8:45 am]

BILLING CODE 7555-01-M

[CFDA No.: 84.120-A&B]

Invitation of Applications for New Awards Under the Minority Science Improvement Program (MSIP) for Fiscal Year 1988

Purpose: Provides grants to support projects that propose to effect long-range improvement in science and engineering education at predominantly minority institutions and to increase the participation of underrepresented ethnic minorities in scientific and technological careers.

Deadline for transmittal of applications: November 20, 1987 for Special Projects, and January 29, 1988 for Institutional, Design, and Cooperative Projects.

Applications available: October 5, 1987.

Available funds: The Administration's budget for fiscal year 1988 requested an appropriation of \$5,000,000. Should this amount be appropriated, approximately \$3,750,000 will be available for Institutional, Design, and Cooperative Projects. The remaining \$1,250,000 will be available for Special Projects.

Maximum size of awards: \$300,000 for Institutional, \$20,000 for Design, \$500,000 for Cooperative Projects, and \$150,000 for Special Projects.

Estimated average size of awards: \$210,000 for Institutional and Cooperative Projects, \$19,000 for Design Projects, and \$44,000 for Special Projects.

Estimated number of awards: Institutional, Design and Cooperative Projects—18. Special Projects—20.

Project period: 12 to 36 months.

Applicable regulations: (a) The regulations governing the Minority Science Improvement Program, 34 CFR Part 637, and (b) The Education Department General Administrative Regulations (EDGAR), 34 CFR Parts 74, 75, 77, and 78.

For applications or information contact: Dr. Argelia Velez-Rodriguez, U.S. Department of Education, Mail Stop 3327, 400 Maryland Avenue, SW, Room 3022, ROB-3, Washington, DC 20202. Telephone (202) 732-4396.

Program authority: 20 U.S.C. 1135b-1135b-3 and 1135d-1135d-6.

Dated: September 10, 1987.

C. Ronald Kimberling,

Assistant Secretary for Postsecondary Education.

[FR Doc. 87-21478 Filed 9-16-87; 8:45 am]

BILLING CODE 4000-01-M

1987

OFFICE OF POSTSECONDARY EDUCATION
PROPOSAL TO THE DEPARTMENT OF EDUCATION
Cover Sheet

FOR CONSIDERATION BY ED ORGANIZATIONAL UNIT (Indicate the most specific unit known, i.e., program, division, etc.)		ARE ANY FUNDS IN THIS PROPOSAL REQUESTED ELSEWHERE IN ED OR ANOTHER AGENCY? YES ___ NO <u>X</u> ; IF YES, EXPLAIN ON BACK.
MINORITY INSTITUTIONS SCIENCE IMPROVEMENT PROGRAM		
PROGRAM ANNOUNCEMENT/SOLICITATION NO.: 84.120A		CLOSING DATE (CIRCLE ONE) Nov 21, 1986 & <u>Feb 20, 1987</u>
NAME OF SUBMITTING ORGANIZATION TO WHICH AWARD SHOULD BE MADE (INCLUDE BRANCH/CAMPUS/OTHER COMPONENTS): American Chemical Society/Education Division/College Chemistry Consultants Service		
ADDRESS OF ORGANIZATION (INCLUDE ZIP CODE): 1155 Sixteenth Street, NW, Washington, DC 20036		
CIRCLE TYPE OF PROJECT: INSTITUTIONAL, COOPERATIVE, DESIGN, <u>SPECIAL</u> (FOR SPECIAL PROJECTS, SPECIFY TITLE) Consultant Visits to Historically or Predominantly Minority Colleges		
REQUESTED AMOUNT FROM ED \$133,105	PROPOSED DURATION 24 months	DESIRED STARTING DATE November 1, 1987
PI/PD NAME AND SOCIAL SECURITY NO. (SSN)* Edmund James Bradford, Ph.D. 510-58-9467		PI/PD PHONE NO. OFFICE: (202) 872-4587 HOME: (202) 686-9023
PI/PD DEPARTMENT Office of College Chemistry	PI/PD ORGANIZATION American Chemical Society	
ADDITIONAL PI/PD AND SSN*		ADDITIONAL PI/PD AND SSN*

*Submission of social security numbers is voluntary and will not affect the organization's eligibility for an award. However, they are an integral part of the ED information system and assist in processing the proposal.

DISCIPLINE(S) INVOLVED IN PROJECT: Chemistry

This project will benefit the chemistry departments of the participating institutions as well as benefitting a significant number of minority students.

PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR

Dr. Edmund James Bradford
NAME (Prof., Dr., Mr., Ms.)

Edmund James Bradford
SIGNATURE

Manager, Office of College Chemistry
TITLE

February 19, 1987
DATE

AUTHORIZED ORGANIZATIONAL REP

Dr. John K Crum
NAME (Prof., Dr., Mr., Ms.)

John K Crum
SIGNATURE

Executive Director
TITLE

February 19, 1987
DATE

**SUMMARY
PROPOSAL BUDGET**

FORM APPROVED
OMB/FEDAC #1840-0133
FORM EXPIRATION 10/88

PROPOSAL NO. 120AH70100

		FOR ED USE	
		FUNDS REQUESTED BY PROPOSER	FUNDS GRANTED BY ED (IF DIFFERENT)

7. ALL OTHER DIRECT COSTS (List items and dollar amounts. Details of subcontracts, including work statements and budget, should be explained in full in proposal.)			
	(50) Consultant report fees	\$ 5,000	
	(50) Local organizer honoraria	\$ 32,500	
	(50) Office services	\$ 12,500	
	(50) Local meeting expenses	\$ 15,000	
a.	PUBLICATION COSTS/PAGE CHARGES	\$ -0-	
b.	COMPUTER SERVICES	\$ -0-	
c.	CONSULTANT SERVICES (Identify consultants by name and amount)		
	Please see attached brochure	15,000	
TOTAL OTHER DIRECT COSTS		\$ 80,000	\$
8. INDIRECT COSTS (Specify rate(s) and base(s) for on/off campus activity. Where both are involved, identify itemized costs included in on/off campus bases in remarks.)			
	ACS corporate overhead (off-site) at 2.78% of \$100,000	\$ 2,780	
	ACS corporate overhead (on-site) at 39.45% of \$15,600	\$ 6,154	
TOTAL INDIRECT COSTS		\$ 8,934	\$
9. PARTICIPANT SUPPORT COSTS, IF ALLOWED BY PROGRAM GUIDE (Itemize)			
1.	STIPENDS	\$ _____	
2.	TRAVEL	\$ _____	
3.	SUBSISTENCE	\$ _____	
4.	OTHER - SPECIFY	\$ _____	
5.	TOTAL PARTICIPANT COSTS	\$ -0-	\$
10. TOTAL DIRECT AND INDIRECT COSTS		\$ 127,966	\$
11. AMOUNT OF THIS REQUEST (This figure should appear on the cover page)		\$ 127,966	\$
12. INSTITUTIONAL SUPPORT (Project Costs not requested from MISIP)		\$	\$

REMARKS

Institutional support is impossible to accurately predict, however it will consist of the donation of supervisory staff, travel arrangement services, and the production and distribution of summary brochure.

MINORITY INSTITUTIONS SCIENCE IMPROVEMENT PROGRAM
 BUDGET

NAME OF INSTITUTION	PROPOSAL NUMBER:	FIRST YEAR	SECOND YEAR	THIRD YEAR	TOTAL
AMERICAN CHEMICAL SOCIETY	120MI70100				
CATEGORY					
1. PERSONNEL		7,610	7,990		15,600
2. FRINGE BENEFITS		1,674	1,758		3,432
3. TRAVEL		10,000	10,000		20,000
4. EQUIPMENT		-0-	-0-		-0-
5. MATERIALS AND SUPPLIES		-0-	-0-		-0-
6. CONSTRUCTION (RENOVATIONS)		-0-	-0-		-0-
7. OTHER DIRECT COSTS		40,000	40,000		80,000
8. INDIRECT COSTS		4,392	4,542		8,934
9. PARTICIPANT SUPPORT		Undetermined	Undetermined		Undetermined
10. TOTAL DIRECT AND INDIRECT COSTS		63,676	64,290		127,966
11. AMOUNT REQUESTED		63,676	64,290		127,966

**PROJECT SUMMARY
MINORITY INSTITUTIONS SCIENCE IMPROVEMENT
PROGRAM (MISIP)**

1. NAME OF INSTITUTION OR CONSORTIUM

American Chemical Society, College Chemistry Consultants Service

2. PROJECT DIRECTOR

Dr. Edmund James Bradford

3. NUMBER OF PERSONS/YEAR EXPECTED TO RECEIVE INSTRUCTION UNDER PROJECT

Approximately 2,500 minority students who would not otherwise enroll in the sciences.

4. TITLE OF PROJECT

Consultant Visits to Historically or Predominantly Minority Collèges

5. SUMMARY OF PROPOSED WORK (Limit to 22 Pica or 18 Elite Typewriter Lines)

This project is designed to provide high-quality, low-cost consultant visits to historically and/or predominantly minority institutions through the College Chemistry Consultants Service of the American Chemical Society. These consultant visits will enable these institutions to prepare long-range plans designed to encourage precollege minority students to enter academic pathways leading to careers in science and technology, to improve the institution's undergraduate chemistry program, and to improve the institution's research capabilities. The anticipated results of this project are an improvement in minority students' access to science careers and an improvement in the ability of these institutions to secure financial resources from funding agencies not traditionally accessible to minority groups. A highly significant and innovative aspect of this project will be the development of a community strike force in the local area of each visited college. These strike forces will provide the drive and expertise necessary to attract minority students into the sciences, and to help these students complete their education.

Background

The College Chemistry Consultants Service of the American Chemical Society was awarded a special project grant in 1985 from the Minority Institutions Science Improvement Program to send consultants to historically or predominantly minority colleges. The goals of this two-year project are to assist minority college chemistry departments in their efforts to improve their curricular offerings, develop research projects capable of attracting outside funds, and to establish community outreach programs to encourage minority youth to enter the academic pathways leading to careers in the sciences. The first two goals of the project are being accomplished without question. The third goal, community outreach, has posed some unexpected challenges.

The experience we have gained in working with minority college chemistry departments in the last year and a half has caused us to rethink our ideas on successful community outreach. To date, our consultants have encouraged the faculty in the chemistry departments to attend high school career days, to visit high school chemistry classes, to invite high school chemistry students to the college campus, and to form relationships with high school chemistry teachers and guidance counselors. All of these are perfectly acceptable, traditional methods of encouraging students to enroll in chemistry when they go to college. The problem is that these methods produce little success in attracting minority students into the sciences. These methods may work very well for recruiting some types of students, but they appear to be the wrong prescription for curing the underrepresentation of minorities in the sciences.

During the White House Initiative on Historically Black Colleges and Universities Conference last September, the staff of the Consultants Service participated in discussions with some of the leaders in the minority college network (particularly Dr. Ralph Turner and Dr. Frederick Humphries, both of Florida A&M University). Additional discussions with colleagues at the annual MISIP Project Directors' Meeting last November and our own experiences in visiting colleges have convinced us that the underrepresentation of minorities in the sciences is probably not a result of minority students being unaware of career opportunities in the sciences. It is more a problem of belief that they could possibly ever achieve such a career. Having a college professor with a Ph.D. tell these students about a career in chemistry may only magnify the student's perception of a tremendous gulf between where he or she is now and where the professional scientist is. The student is unable to see any stepping stones that might enable him or her to cross the gulf.

These discussions also convinced us that, even if a student does enroll in a science major, the odds are against him or her graduating in that major. This is undoubtedly a result of the environmental press that every minority student must cope with while in college. Inadequate high school preparation, chronic financial difficulties, and a lack of support and encouragement from peers and family all contribute to make opting out of science--or dropping out of school altogether--seem an attractive alternative.

The College Chemistry Consultants Service will continue to assist minority colleges and universities in their efforts to improve their

chemistry curricula and research. These are crucial activities to ensure the long-term development of high-quality chemistry programs in the nation's historically or predominantly minority institutions. In addition, the Service should expand and redirect its community outreach activities to make them much more effective in attracting and retaining minority students. The development of high-quality curricula and research programs at these colleges will have little purpose if there are no students in the pipeline to take advantage of them.

Objectives of the Project

At the end of the proposed project period, consultants from the College Chemistry Consultants Service will have visited 50 historically or predominantly minority college chemistry departments. Each of the visited institutions will have developed a comprehensive plan, based on the recommendations and report of the consultant, to systematically improve its chemistry curriculum and research programs. We anticipate that the improvement of the curricula and research programs at these institutions will

- o enhance the institutions' ability to provide high-quality undergraduate preparation for their chemistry students,
- o improve the institutions' abilities for self-assessment and management to assure continued improvement, and
- o improve the institutions' ability to develop research programs at the cutting edge of technology that will enable them to compete with parity for outside funds not earmarked for minority schools.

A second, and perhaps more important, objective of the project is to catalyze the formation of a support system within the community of each of

the visited institutions. The purpose of these support systems will be to assist the college chemistry faculty in

- o fostering an interest in science among young minorities,
- o encouraging young minorities to enroll in the academic pathways leading to careers in the sciences, and
- o helping minority students overcome the pressures to opt out of a science curriculum once they have enrolled.

It is crucial to the success of this project that the community becomes involved. Our consultants, coming from outside the area, cannot presume to know what is needed in each community. However, the consultant's visit will be used to provide an incentive and a mechanism to establish a lasting local group that does understand what is needed in a community and knows what will or will not be effective.

Methods, Materials, and Procedures

Upon receiving funding, the Service would send a descriptive announcement and a Service brochure (see attached) to all chemistry departments on the Department of Education's "List of Predominantly Minority Institutions." The chair or head of a department would apply to the Service for a funded visit and select a consultant from the brochure. The Service staff would then contact the consultant, arrange the visit, and send additional materials to the chemistry department's contact person. These materials would include

- o an institutional information packet (attached),
- o a list of the department's responsibilities during and after the visit,
- o a planning guide for the development of the community support system,

and,

- o a comprehensive listing of ACS resources available to help the support system.

The consultant would make a two-day visit to the department, during which time he or she would review the curriculum, facilities, research programs, mission, and goals of the department; and also meet with the chemistry faculty, administrators, and students to discuss strengths and needs. In a timely manner, the consultant would prepare a written report and send it to the chair or head of the visited chemistry department as well as to the staff administrator of the Consultants Service.

Not long after the consultant's visit, the local contact in the chemistry department would arrange a meeting of approximately 20 individuals from the community. The criteria for being invited to this meeting would be the individual's concern and ability to contribute to a solution of the problem. The decisions about who should be invited are best left to the local organizer, but the participants should definitely include all college chemistry faculty members, local high school chemistry teachers, elementary and middle school science teachers, college guidance counselors, high school guidance counselors, a college administrator, high school principals, several area business leaders, several area community leaders (perhaps clergy, if appropriate), members of local parent-teacher associations, and several area media representatives. During this meeting, the local organizer would serve as a discussion leader and guide the participants into determining the local area's needs and what can be done to meet them. The meeting would be followed by an informal reception to give the participants time to know each other's abilities better. The more personal relationships

that form during this reception are critical for the functioning of the community support system.

The major outcome of this meeting would be the development of a properly informed and participative community support system. Considering the magnitude of the problem and the capabilities of the group, "community strike force for science" is a more appropriate term than "community support system." It will be the goal of this group to strike at the causes of minority underrepresentation in the sciences. This strike force would consist of a number of two- or three-member task groups, each designed to address a specific, major problem area discussed during the meeting.

A secondary outcome of this meeting would be the development of a substantial bank of local role models who would be available from time to time to participate in college chemistry department recruiting activities. This bank would consist of five to ten names of individuals in each of five categories representing progressive steps toward a career in chemistry. The five categories would be high school seniors, college sophomores, college seniors, industrial chemists, and academic chemists. These categories would present a series of achievable goals to a minority student considering a career in chemistry.

The strike force and the bank of role models would collectively become a broad-based and highly effective organization for attracting and retaining minority students. Examples of how this would work include

- o college recruiting activities involving teachers, role models, and counselors,
- o young students receiving brief, personal contacts from slightly older

- role models and a high school teacher,
- o disheartened students receiving help and encouragement from an older role model who recently faced the same kinds of problems,
- o business leaders locating additional school loans or part-time jobs for students dropping out for financial reasons, and
- o college and high school chemistry teachers providing math skills tutoring sessions for underprepared students.

Even these few examples indicate the tremendous potential of the proposed strike force in dealing with a tremendous range of personal and academic problems--the key is to form an informed and committed strike force with the single goal of keeping minority students in school.

Because this project will be operated through an existing program of the American Chemical Society, the community strike force can become proactive and use our materials and programs to accomplish its goals. The ACS has many publications and activities designed to encourage an interest in science among students, and to help these students achieve a career. Following are some examples of how the community strike force could use ACS materials to enhance their efforts. The strike force could

- o distribute copies of Wonderscience (attached) to area elementary and middle school students,
- o distribute ACS career brochures (attached) during recruiting activities in area high schools,
- o provide ACS press kits (attached) to local media representatives,
- o arrange a summer work experience for a student through ACS Project SEED (attached),
- o provide Chem Matters magazine (attached) to local high school students,

- o encourage the formation of a student affiliate chapter of the ACS on local college campuses, and
- o work with an area ACS local section to bring in speakers on topics of interest to the community, or to sponsor a Science, Technology, and Society workshop for high school teachers and the community.

The 50 visits proposed under this project will require much more staff time to accomplish than the 50 visits of the previous grant period. For this reason, funds for a half-time project coordinator are included in this proposal. Ideally, this coordinator should be a senior or graduate chemistry major at a local college or university. This coordinator should be a minority so that he or she can bring a necessary sensitivity to the position and, at the same time, form valuable contacts with the historically or predominantly minority college network.

Project Budget

A budget for 50 visits and meetings over a two-year period is below.

Travel for consultants @ \$400 per visit =	\$ 20,000
Honoraria for consultants @ \$150 per day =	15,000
Report fees for consultants @ \$100 per report =	5,000
Honoraria for local meeting organizers @ \$650 per meeting =	32,500
Office service for local organizers @ \$250 per meeting =	12,500
<u>Meeting expenses for 20 persons @ \$15 per person =</u>	<u>15,000</u>
Subtotal for nonpersonnel items =	<u>\$100,000</u>
Coordinator's salary @ \$150 per week for 104 weeks =	\$ 15,600
<u>Fringe @ 22% of salary =</u>	<u>3,432</u>
Subtotal for personnel items =	<u>\$ 19,032</u>
ACS corporate overhead (external operations) @ 2.78% of nonpersonnel items (.0278 x 100,000) =	\$ 2,780
ACS corporate overhead (internal operations) @ 39.45% of <u>personnel items--excluding fringe (.3945 x 15,600) =</u>	<u>6,154</u>
Subtotal for corporate overhead	<u>\$ 8,934</u>
<hr/> Grand total of requested funds =	<u>\$127,966</u>

Although the requested amount is more than the anticipated average for special project grants, the fact that it will benefit at least 50 institutions at a cost of less than \$2,700 per institution gives this project the potential of tremendous impact at a very small cost. As a rather conservative estimate, 50 additional minority students entering a science major at each of the visited schools over the next few years will put the cost of placing a minority student into the science career pipeline at \$53.

That is a remarkably good investment, and one that the United States must make. Minority underrepresentation in the sciences is more than an issue of equity, it is an issue of wasting a national human resource at the risk of losing our economic and technological competitiveness. In only 40 years, minorities will make up 50% of high school graduating classes. Unless something is done now, we cannot possibly expect to replenish our nation's pool of scientists and engineers.

Evaluation of the Project

Evaluating the efficacy of the project in quantitative terms will be somewhat difficult. We can, however, monitor the progress of these institutions as they strive to improve their curricula and research programs. It is most common for a consultant to recommend to a college chemistry department that a proposal for funding be submitted to finance a particular research project. This recommendation is made after the consultant has reviewed the department's mission and areas of strength. It is also common for a consultant to recommend a series of steps a department should take to move it closer to approval by the American Chemical Society--a term synonymous with high-quality chemistry education. These recommendations

are clearly spelled out in the consultants' report and, as a part of those documents, will be included in the final report on the project to the Minority Institutions Science Improvement Program. This will constitute evidence that the proposed project is serving its purpose.

Evidence that the community outreach component of the project is succeeding will not be available for some time. It seems apparent that if the community strike forces are formed, they will have the desired effect. As evidence that the strike forces have been formed and are operating, the Service will require each of the visited institutions to submit a report describing the make up of the strike force, complete with a list of which members are assigned to address specific problems. For example, a problem that is bound to be identified in each community is the lack of interest-building science materials for younger students. The report from the institution should specify who is responsible for getting issues of Wonderscience into the hands of the students and their parents, and how they are to accomplish this. At the end of the funding period, there will be 50 such reports containing a wealth of information on what problems are out there and on what can be done to solve them. This information will be incorporated into the final report to the Minority Institutions Science Improvement Program. To magnify the benefits of this project, the Service would prepare a brochure describing the various problems that have been identified by the visited institutions and what they did to solve them. This brochure will be distributed to all of the colleges on the "Predominantly Minority Institutions List" as well as to other colleges facing similar problems. This activity would add a substantial multiplier effect to the positive outcomes of the project and fortify the self-help aspect of the minority college network.

Expected Outcomes and Dissemination Plans

The outcomes of this project will undoubtedly be positive and represent a substantial improvement in the quality of the chemistry programs at the visited institutions as well as an increase in the access minority students have to these chemistry programs. It would be possible to extend these positive outcomes to other historically or predominantly minority institutions (and nonminority institutions as well) by preparing an article that describes the activities and successes of the visited colleges and having it published in several journals and newspapers. The Journal of Chemical Education, Chemical and Engineering News, and the Chronicle of Higher Education all reach populations that could use this information to improve minority students' access to science education. Copies of these articles will be included in the final report to the Minority Institutions Science Improvement Program.

Scientific and Educational Value of the Project

Currently, Blacks represent about 12% of the population of the United States and Hispanics represent another 6%. Together, these two major components of the population produce less than 4% of science and engineering doctorates. Recent projections indicate that these two minority groups will soon produce a majority of the constantly diminishing pool of high school graduates. The conclusion is clear. If something is not done to drastically improve the rate at which these populations attend college and enroll in science programs, our nation will not be able to replace its existing pool of scientists and engineers. Increasing the number of minorities in the sciences is no longer a question of social justice; it is rapidly becoming a question of economic survival.

The proposed project will address this complex situation. By improving the quality of the curricula and research programs in the nation's historically or predominantly minority colleges, this project will help these institutions produce graduates capable of replacing the existing pool of scientists. Even now, the historically Black colleges and universities are graduating 40% of the Black students with quantitative degrees. This will undoubtedly increase in the future and we must take steps to assure that these schools are offering training of the highest possible quality.

Improving the quality of these colleges' science programs is a fine goal, but it will mean nothing if students fail to enroll in the programs. The proposed community strike forces will be highly effective in encouraging minority students to enter the academic pathways leading to careers in the sciences and in keeping them enrolled.

Institutional Support for the Project

Since its inception, the American Chemical Society has initiated and supported many activities designed to improve science education. The Society also has a firm commitment to a goal of fostering quality chemistry education, available to all. The proposed project will continue a tradition begun in 1968 by the institution of Project SEED, a Society program that places economically disadvantaged students in an academic laboratory for a summer. Project SEED has broadened the career horizons of many minority students and the proposed project will do the same for many more.

The American Chemical Society will contribute a vast range of publications, computer facilities, printing and distribution services, and

its substantial network of professional contacts to this project. The Society will not profit from this grant other than making progress toward its goal of fostering quality education in chemistry, available to all. Because of the nature of this project, the Society will be able to administer it by assessing only very modest corporate overhead. There are very few institutions capable of doing a project of this magnitude for so little.

SUMMARY INFORMATION OF PREVIOUS AWARD

The College Chemistry Consultants Service was awarded a special project grant in 1985 from the Minority Institutions Science Improvement Program of the U. S. Department of Education. The following constitutes a brief report on the progress of this continuing project.

The spring of each year is the time that most institutions find convenient for reviewing their programs. This allows time for recommended changes to be implemented before the start of the next academic year. During the spring of 1986 (the first consulting season of the grant period), the College Chemistry Consultants Service visited seven historically or predominantly minority colleges. Since we had anticipated a tremendous response to this program, we were somewhat disappointed that at least 25 visits were not completed in 1986. Interestingly, we did receive a rather large number of inquiries regarding the project that did not turn into visits.

In an effort to unearth the causes of this decline in interest after an initial contact, the staff of the Service made a number of phone calls to the institutions that did not persist in their application procedures. Additionally, the staff participated in the White House Initiative on Historically Black Colleges and Universities and there initiated several frank discussions with leaders in the Black college network. The problem, in its simplest terms, was that our Service brochure did not reflect a credible range of consultants--there were no minorities on the consultants roster. There were, in fact, a number of minority consultants on the Consultants Service; unfortunately, the brochure had not been updated in many years and didn't have them listed. In retrospect, we should have asked MISIP for funds to update the brochure.

To remedy this situation, the staff of the Service wrote a proposal to the American Chemical Society Committee on Education for \$3,000 to identify additional minority consultants and to publish a new brochure. The committee granted these funds in September, 1986 and a new, greatly expanded brochure was published in December. The staff also made and cultivated a number of professional contacts with the minority college network in order to learn more about the needs of these schools and to foster some word-of-mouth advertising for the Service.

These initiatives have been successful. There are now 21 new visits in some stage of the visitation process, and this is very early in the season. We are most confident that the Service will not only be able to complete the 50 funded visits for this project, but also be able to line up a substantial number of visits for the pending project.

Visits Completed-1986

Benedict College

Winston-Salem State College

University of Arkansas-Pine Bluff

Fort Peck Community College

Mississippi Valley State University

Texas College (received free equipment from consultant's firm)

Florida Memorial College

Visits in Progress-1987

South Carolina State College

Morgan State University

Chicago State University (complete)

University of Puerto Rico-Ramey
University of Puerto Rico-Mayaguez
Laredo State University
Hampton Institute
College at Old Westbury
Florida A&M University (two visitors, cooperative project)
University of Puerto Rico-Aguadilla
LeMoyne-Owen College
Talladega College (at the request of the president-Dr. Paul Mohr)
Virginia State College
Trident Technical College
Shelby State Community College
University of Puerto Rico-Bayamon (two visitors)
Benedict College (additional visit)
Community College of Philadelphia (partly supported by ACS)
Bishop State Junior College (partly supported by ACS)
Southwest Texas Junior College
St. Louis Community College-Forest Park (collaborative visit)

The College Chemistry Consultants Service has clearly taken the appropriate steps to facilitate this project. We have learned a great deal about the needs of the nation's minority schools and will continue to be responsive to those needs.

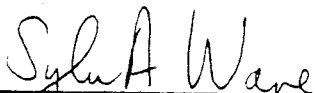
LOCAL REVIEW STATEMENT

The mission of the educational activities of the American Chemical Society, as set forth in its National Charter that was enacted by the U.S. Congress in 1937, is ... "to encourage in the broadest and most liberal manner the advancement of chemistry in all its branches; the promotion of research in chemical science and industry; the improvement of the qualifications and usefulness of chemists through high standards of professional ethics, education, and attainments; the increase and diffusion of chemical knowledge; and by its meetings, professional contacts, reports, papers, and publications, to promote scientific interests and inquiry, thereby fostering public welfare and education, aiding the development of our country's industries, and adding to the material prosperity and happiness of our people." To achieve this mission, the American Chemical Society has adopted a number of specific goals for its educational activities, one of which is "to identify and develop support for unmet needs in chemistry education."

One of the most important needs in chemistry education, indeed in all of education, is a remedy for the serious underrepresentation of minorities as professionals. This project can make a significant contribution to an increase in the awareness of precollege minority students of the opportunities to be found in careers in science and in their motivation to enter the educational paths to such careers. This project will also enable historically and/or predominantly minority institutions to form long-range plans to enhance research programs, thereby developing sound foundations upon which to build stronger, more competitive institutions. As these

institutions develop, they will be able to compete with parity with other institutions for resources not traditionally available to minority schools.

The American Chemical Society believes in this project. The facilities and publications required for its successful implementation are now in place and supported by Society funds. Because of this, the overhead costs of administering this project will be minimal.



Sylvia A. Ware
Director, Education Division



John K. Crum
Executive Director of the Society

ASSURANCE OF COMPLIANCE WITH TITLE VI OF THE CIVIL RIGHTS
ACT OF 1964, SECTION 504 OF THE REHABILITATION ACT OF 1973,
TITLE IX OF THE EDUCATION AMENDMENTS OF 1972, AND THE AGE
DISCRIMINATION ACT OF 1975

The applicant provides this assurance in consideration of and for the purpose of obtaining Federal grants, loans, contracts (except contracts of insurance or guaranty), property, discounts, or other Federal financial assistance to education programs or activities from the Department of Education.

The applicant assures that it will comply with:

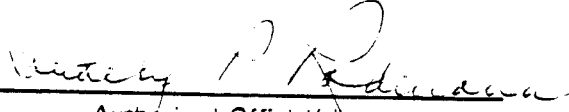
1. Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C. 2000d et seq., which prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving Federal financial assistance.
2. Section 504 of the Rehabilitation Act of 1973, as amended, 29 U.S.C. 794, which prohibits discrimination on the basis of handicap in programs and activities receiving Federal financial assistance.
3. Title IX of the Education Amendments of 1972, as amended, 20 U.S.C. 1681 et seq., which prohibits discrimination on the basis of sex in education programs and activities receiving Federal financial assistance.
4. The Age Discrimination Act of 1975, as amended, 42 U.S.C. 6101 et seq., which prohibits discrimination on the basis of age in programs or activities receiving Federal financial assistance.
5. All regulations, guidelines, and standards lawfully adopted under the above statutes by the United States Department of Education.

The applicant agrees that compliance with this Assurance constitutes a condition of continued receipt of Federal financial assistance, and that it is binding upon the applicant, its successors, transferees, and assignees for the period during which such assistance is provided. The applicant further assures that all contractors, subcontractors, subgrantees or others with whom it arranges to provide services or benefits to its students or employees in connection with its education programs or activities are not discriminating in violation of the above statutes, regulations, guidelines, and standards against those students or employees. In the event of failure to comply the applicant understands that assistance can be terminated and the applicant denied the right to receive further assistance. The applicant also understands that the Department of Education may at its discretion seek a court order requiring compliance with the terms of the Assurance or seek other appropriate judicial relief.

The person or persons whose signature(s) appear(s) below is/are authorized to sign this application, and to commit the applicant to the above provisions.

February 20, 1987

Date


Authorized Official(s)

Edmund James Bradford

Name of Applicant or Recipient

American Chemical Society
1155 Sixteenth Street, NW

Street

Washington, DC 20036

City, State, Zip Code