Faculty Distinctions

Editor’s note: In the July Course X News, we announced the AIChE’s selection of Professor Howard Brenner for their Warren K. Lewis Award. Below is a more detailed announcement of this distinguished award won by Professor Brenner:

Brenner Honored With AIChE's W.K. Lewis Award
**Professor Howard Brenner**, Willard Henry Dow Professor of Chemical Engineering, has been selected by the American Institute of Chemical Engineers (AIChE) to receive their 1999 Warren K. Lewis Award. Inaugurated in 1963, the award "recognizes distinguished and continuing contributions to chemical engineering education." Previous MIT award winners were Edwin F. Gilliland ('33) in 1965, Thomas K. Sherwood ('24) in 1972, Robert C. Reid ('54) in 1976 and James Wei ('54) in 1985, all members at the time of the MIT Department of Chemical Engineering. Brenner, previously honored by the AIChE with their Alpha Chi Sigma Award (1976) (for "outstanding accomplishments in fundamental chemical engineering research") and their William H. Walker Award (1985) (for "outstanding contributions to the chemical engineering literature"), is only the second person in the history of the AIChE to have received all three of these major awards -- each representing a different category of accomplishment.

The Lewis Award is named in honor of Warren Kendall ("Doc") Lewis ('05), an MIT Chemical Engineering faculty member from 1910 - 1948 (later Emeritus until his death at age 92 in 1975), first Department Head at MIT (from '20-'29), and one of the pioneers of the chemical engineering profession. Doc Lewis is universally recognized as having identified and articulated through his writings the "unit operations" educational paradigm that originally defined the discipline of chemical engineering. The award, sponsored by the Exxon Research Engineering Company and Exxon Chemical Company, consists of a plaque, a $5,000 honorarium, and a $500 travel allowance to attend the Annual AIChE November 1999 meeting in Dallas, where the award will be formally presented.

For more about Professor Brenner's recent research, visit [http://web.mit.edu/cheme/www/People/Faculty/Brenner_Howard.html](http://web.mit.edu/cheme/www/People/Faculty/Brenner_Howard.html)

For more about AIChE's W.K. Lewis Award, visit [http://www.aiche.org/docs/awards/awardedtl.asp?AwardID=62](http://www.aiche.org/docs/awards/awardedtl.asp?AwardID=62)

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**Department News**

**Losey Brings Home the Walrus**

**1999 ChemE Golf Tournament Summary**

*by Janet Fischer*

A good time was had by most (if not all!) at the 1999 Bald Eagle Open, also known as the Chemical
Course X News for September, 1999

Engineering Golf Tournament, held Monday, August 23\textsuperscript{rd} at Putterham Meadows in Brookline. Defending champion and tournament organizer, David Dewitt, arranged glorious weather for the golfers gathered for a shot at two years' worth of bragging rights!! The weather was in marked contrast to the torrential downpours that knocked the lights out of the 1998 tournament, as participants scrambled for shelter on the 3\textsuperscript{rd} and 4\textsuperscript{th} holes. The 1999 outing offered a change of venue from the traditional Fresh Pond Golf Course in Cambridge. Most golfers seemed pleased with the change, and were caught up in Ryder Cup fever, as \textit{THE} Country Club (site of the September Ryder Cup mega-event) abuts Putterham. Helicopters could be seen staking out the terrain, and ground crews were working feverishly to prepare Putterham for its use as a parking lot site for the Ryder Cup!

Tight and tree-lined Putterham fairways took their toll on golf scores, driving most scores into the 90's and triple digits. One lone golfer, \textbf{Matt Losey}, dipped into the eighties (89), and emerged victorious with the coveted Odobenus Rosmarus (The Walrus) trophy. Losey, a Stanford graduate (and perhaps a former playing partner of Tiger Woods?!), will have the dubious honor of planning the Millennium Bald Eagle Tournament for Summer 2000.

Rounding out the field were \textbf{Josh Taylor, Doug Osborne, Brett Cruden, Michael Wong, Ed Ahn, David} and \textbf{Ann Dewitt}, and \textbf{Janet Fischer}. Newcomers \textbf{Steve Weiss, Tim Padera} and \textbf{Josh Freedman} were welcomed to the field, as were golf enthusiasts and tournament regulars (perhaps playing in their final ChemE Open) \textbf{Chase Orsello, David Kronholm, Andrey Zarur} and \textbf{Mark Fokema}.

Many thanks to David Dewitt for organizing a wonderful day of golf, and best wishes to all of the golfers seeking greener fairways in the near future!!

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\begin{center}
\textbf{Department Events}
\end{center}

\textbf{Calendar of Events - Fall 1999}

\begin{center}
\textbf{Calendar of Events - Fall 1999}
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### September

<table>
<thead>
<tr>
<th>Date</th>
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<tbody>
<tr>
<td>2nd</td>
<td>Faculty Retreat: Long-Range Planning Charles Hotel, Harvard Square</td>
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<tr>
<td>7th</td>
<td>Registration Day - Fall Term 12:00 noon to 1:30 PM</td>
</tr>
<tr>
<td>9th</td>
<td>Departmental Brunch 9:30 AM to 11:00 AM</td>
</tr>
<tr>
<td>13th</td>
<td>Faculty Meeting 4:15 PM to 6:00 PM</td>
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<tr>
<td>20th</td>
<td>Faculty Meeting 4:15 PM to 6:00 PM</td>
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<tr>
<td>24th-25th</td>
<td>Howard Brenner 70th Birthday Symposium</td>
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### October

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<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>4th</td>
<td>Faculty Meeting 4:15 PM to 6:00 PM</td>
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<tr>
<td>13th</td>
<td>Department Information Conference</td>
</tr>
<tr>
<td>16th</td>
<td>Fall Faculty Dinner</td>
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<tr>
<td>22nd</td>
<td>Frontiers in Biotechnology Lecture 3:00 PM</td>
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<tr>
<td>25th</td>
<td>Faculty Meeting 4:15 PM to 6:00 PM</td>
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### November

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<tr>
<td>8th</td>
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<tr>
<td>22nd</td>
<td>Faculty Meeting 4:15 PM to 6:00 PM</td>
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### December

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<tr>
<th>Date</th>
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<tbody>
<tr>
<td>3rd</td>
<td>Hoyt C. Hotell Lecture 3:00 PM</td>
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<tr>
<td>6th</td>
<td>Faculty Meeting 4:15 PM to 6:00 PM</td>
</tr>
</tbody>
</table>

For questions about these and other Chemical Engineering Department Events, please contact:

Arline Benford
Phone: 258-7031
EMail: arline@mit.edu

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**MIT Library News**

The *Chemical & Engineering News* from ACS is back as an online journal at:

The latest new book list of chemistry and chemical engineering books from April 1 to May 15, 1999 is at:


For further information please contact the Chemistry Librarian, Erja Kajosalo at:

Office: 14S-134
Phone: 253-9795
EMail: kajosalo@mit.edu

Pre-Doctoral Opportunities

Opportunities in Japan and China For Chemical Engineers
MIT China Program and MIT Japan Program

"I have lots of friends and the work is great." So says Karen Chu who spent this past spring at ACER in Taiwan at the semiconductor fabrication lab. Karen was one of several Chemical Engineering students who went to East Asia this year with the MIT China Program and MIT Japan Program.

Elizabeth Dale is in China at the China Friendship Hospital. She is visiting different departments to learn how a Chinese hospital operates. "This week I've been in the internal medicine department observing and asking questions," said Elizabeth at the mid-point of her internship. "I got to see a bone marrow biopsy performed this morning!"

Dan Hu is in Japan at the Sumitomo/3M joint venture. Dan must analyze and optimize a new product and then make samples of the product. The challenging work, supportive research environment, and dynamic atmosphere of Tokyo make him glad that he chose this internship over other opportunities in the US. Says Dan, "I feel very lucky to be here verses most other places. Whoever told me that Japan can be a lonely place was out of his mind."

For more information about internships through the MIT Japan Program and the MIT China Program, please contact:

Dr. Mark Eykholt
Phone: (617) 258-8208
EMail: meykholt@mit.edu

**Process Development Scientist**  
Leading Biotech Firm  
Location: Northeastern U.S.

Qualifications: The successful candidate will have an MS or Ph.D. in Biochemistry or a related discipline and a minimum of two years industrial experience developing purification processes and transferring those processes into manufacturing in a GMP environment. This individual will also need an outstanding working knowledge of a wide variety of chromatographic processes/equipment. In addition, they must have excellent communication and project management skills.

Responsibilities: We are seeking an individual to develop methods for downstream purification and ultrafiltration of mammalian cell cultures. The individual will investigate and develop chromatographic methods (ion exchange, reverse phase, gel filtration etc.) for purification to be transferred to manufacturing.

Application Procedure: Please contact:

Larry Chiaravallo  
Diedre Moire Corporation, Inc.  
Phone: (609) 584-9000x216  
Fax: (609) 584-9575  
EMail: 915603@candseek.com

**Production Supervisor**  
Leading Biotech Firm  
Location: Mid-Atlantic

Qualifications: The successful candidate will possess a BS in Biology, Biochemistry or a related field and 3+ years in plasma or protein purification in a GMP environment including good hands-on knowledge of large-scale purification and chromatography.

Responsibilities: We are seeking a Production supervisor to oversee a team of technicians in the purification of plasma-based products in a GMP environment. This individual will oversee all downstream processes; running column chromatography, buffer prep, ultrafiltration, etc.

Application Procedures: Please contact:
Research Associate II
Baxter Healthcare
McGaw Park, Illinois

Qualifications: B.S. in an Engineering discipline (Chemical Engineering or Biomedical Engineering preferred); master's degree preferred. More than 3 years relevant industrial experience. Laboratory experience and familiarity with common analytical instrumentation (spectrophotometer, chromatography, pH meter, etc.). Experience with chromatography or biochemical assay techniques (e.g. ELISA desirable; disciplined test development, protocols and documentation skills required.

Responsibilities: Conduct research studies related to the development of basic technology for the treatment of patients with end-stage renal disease. Conduct and report research activities within a team environment with project direction provided by senior scientific and management staff. Design, build, assemble and test prototype devices while providing design recommendations. Prepare test protocols to evaluate various chromatography materials, membranes, and assembled prototype components. Provide design input based on knowledge, experience and test result as a member of the development team. Develop and re-engineer components toward pre-production.

Application Procedure: Please contact

Human Resources Department
Baxter Healthcare
One Baxter Parkway
Deerfield, IL 600125-4633
Phone: (847) 948-2000

For more about Baxter Healthcare, visit http://www.baxter.com

Protein Purification
Leading Biotech Company
Location: New York

Qualifications: The candidate will have 1+ years experience with protein purification (general chromatography skills) and characterization (SDS Page, Western Blot, slot/dot blot, HPLC). Familiarity with UV VIS spectroscopy and computers. You should possess a B.S., M.S. or M.D. degree in Biochemistry or medical sciences.
Responsibilities: You will be responsible for the purification of proteins in small- to medium-scale from baculovirus-infected cells and mammalian cells and purification and refolding of proteins from E.coli and Pichia sources.

Application Procedure: Contact:

Sandy Sachs  
Diedre Moire Corporation  
Phone: (609) 584-8733 ext. 218  
Fax: (609) 584-9575  
EMail: 915608@candseek.com

Research Associate  
Leading Biotech Company  
Location: New York

Qualifications: The candidate should possess a B.S., M.S. or M.D. degree. Good communications and organizational skills are a plus.

Responsibilities: You will work in a lab that is discovering and developing novel mechanism-based drugs for the treatment of dysfunctions associated with memory and learning. You will apply your strong molecular biology skills to perform cloning, plasmid and phage preparation, PCR, cDNA Library Construction, Library Screening Southern and Northern Blot Analysis, Western Blotting, Tissue Culture, Transient and Stable Transfections.

Application Procedure: Contact:

Bart Giles  
Diedre Moire Corporation  
Phone: (609) 584-8733 ext. 235  
Fax: (609) 584-9575  
EMail: 915613@candseek.com

Multiple Positions  
Ceramem Corporation  
Waltham, Massachusetts

1. Mechanical Engineer

Qualifications: We seek a mechanical engineer (M.S. with 3+ years of experience or B.S. with 5+ years of experience). Strongly-desired credentials include knowledge of material mechanics,
appreciable mechanical design and prototype development experience, basic knowledge of
electrical equipment/circuits, and AutoCAD (or equivalent) proficiency. Occasional travel for
field work is required.

Responsibilities: Will be responsible for design, fabrication, and operation of mechanical
components and pilot test systems used for evaluation of advanced filter technology.

Application Procedure: see below.

2. Applied Chemist

Qualifications: Applicant should have chemical laboratory experience and B.S. (0 to 5 years
experience) in chemistry, materials science/engineering or chemical engineering. Preferred
individuals will have mechanical aptitude, strong background in inorganic chemistry, and good
communication skills.

Responsibilities: We seek entry-level bench chemists to execute laboratory scale research
programs involving development of novel catalytic processes catalysts, ceramic materials and
membranes.

Application Procedure: see below.

3. Laboratory Technicians

Qualifications: Applicants should have previous chemical laboratory experience and
demonstrated mechanical aptitude. Applicants should be self-starting, resourceful, highly
motivated, well-suited to a small company environment, and available to start by October 1,
1999.

Responsibilities: Assist with execution of bench-scale research programs and participate in
laboratory maintenance/organization activities.

Application Procedure: Please submit applications to:

Ceramem Corporation
Human Resources Dept.
12 Clematis Avenue
Waltham, MA 02453
Fax: (781) 899-6478
EMail: ceramem@ceramem.com
Leading Tissue Engineering Firm
Location: Northeastern US

Qualifications: Candidate must possess a M.S./B.S. in Chemical Engineering or Biotechnology and have process engineering experience in Biotech/pharmaceutical industry for three or more years. Manufacturing or development process experience is desired. Familiarity with cGMP's and FDA guidelines for large-scale biological processing is also desired.

Responsibilities: Candidate will participate in the process design of new or modified cell culture, expansion and manufacturing systems. Candidate will also implement operation procedures and troubleshoot and correct process and equipment systems. Preparing and implementing qualification protocols for new and existing manufacturing processes; and providing training programs for process systems is also necessary.

Application Procedure: Please contact:
Larry Chiaravallo
Diedre Moire Corp, Inc.
Phone: (609) 584-9000 ext.216
Fax: (609) 584-9575
EMail: 915603@candseek.com

Test Engineer (4-month co-op position) Job Code: JB 1999
Praxair, Inc.
Tonawanda, New York

Qualifications: Minimum 2 years completed towards degree in Chemical or Mechanical Engineering. Minimum GPA: 3.0/4.0. Understanding of general engineering, heat transfer and unit operations.

Desirable Skills (not required): Course/Knowledge in Economic Engineering, Computer Programming

Responsibilities: Prepare and test computer models of system equipment design and selection. Update data sheets/engineering forms. Review ISO feedback and follow-up. Prepare and evaluate equipment/system selections. Provide technical support to field operations.

Application Procedure: Please mail or fax resume and recent copy of transcript as soon as possible to:
Muriel Anderson
Test Engineer (Temporary 3-Month Position)
Aspen Technology, Inc.
Cambridge, Massachusetts

Qualifications: Working towards a B.S. or M.S. degree in Chemical Engineering or Computer Science or equivalent. Strong computer skills. Good communication skills, both oral and written.

Responsibilities: As a member of the Batch Plus team, this individual will be responsible for testing state-of-the-art software modeling products.

Application Procedure: Contact:

Linda Hevenor
Aspen Technology, Inc.
Ten Canal Park
Cambridge, MA 02141
Phone: (617) 949-1286
Fax: (617) 949-1286
EMail: Linda.Hevenor@Aspentech.com

For more about Aspen Tech, visit http://www.aspentech.com

Student Awards
Electrochemical Engineering and Applied Electrochemistry Industrial Electrolysis and Electrochemical Engineering Division The Electrochemical Society, Inc.

Descriptions

The Industrial Electrolysis & Electrochemical Engineering Division offers two awards to students engaged in research in the fields of electrochemical engineering and applied electrochemistry:

H.H. Dow Memorial Student Achievement Award has been endowed by the Dow Chemical Company
Foundation in honor of H.H. Dow, a prolific inventor and tenacious businessman. H.H. Dow was one of the principal organizers and a charter member of The Electrochemical Society.

The Division also sponsors a Student Achievement Award.

Each award shall consist of an appropriate certificate as well as a check in the amount of $1,000, payable to the recipient. The awards shall be given each year, provided that qualified applicants are available. Either award is to be used to pay for expenses associated with the recipient's education or research project: tuition, books, equipment or supplies.

Eligibility: To be eligible to receive an award, candidates must be enrolled in a college or university or have been accepted for enrollment.

Notification: Award recipients shall be notified by the Chairman of the Industrial Electrolysis and Electrochemical Engineering Division by November 30, 1999. Recipients shall be requested, as a condition of the award, to submit to the Division Chairman a written summary of research accomplished during the year the award was presented. The Chairman will have the option of distributing these summaries to members of the Division or submitting them to the Editor of the Journal of the Electrochemical Society for consideration of publication.

Application Deadline: Deadline for receipt of completed applications is September 15, 1999.

Application Procedures: The application for the award must include:

1. Transcripts of all post-secondary school academic work
2. Description of the research project to be engaged in during the next year
3. Statement describing the relationship of the project to the field of electrochemical engineering or applied electrochemistry
4. Biography, resume or curriculum vitae
5. Letter of recommendation from the applicant's research supervisor

The description (2) and statement (3) should be no longer than two double-spaced typewritten pages. No application form is necessary. Each applicant will be considered for both awards.

All application materials are to be sent to:

Dr. Richard D. Varjian
The Dow Chemical Company
1776 Building
Midland, MI 48674
Phone: (517) 636-6557
Fax: (517) 636-4917
Post-Doctoral Opportunities

Polymeric Biomaterials and Tissue Engineering Lab (2)
University of Michigan
Ann Arbor, Michigan

Qualifications: Successful candidates will have a strong background in the research areas of polymer science and engineering or polymeric biomaterials. The ideal candidates should have a recent Ph.D. and publications in polymer science, materials science, biomaterials, or related areas.

Preferred Research Focus: Research experience in polymer processing, characterization, and structure-property relationships is required. Research experience in biodegradable polymers, hydrogels, tissue engineering, controlled release, and implants are pluses but not required.

About Current Research in Dr. Peter Ma's Lab:

1. Biomaterials: Development and structure-property relationships of polymer systems of biomedical importance, such as bioactive polymer materials, biodegradable polymers and mechanically superior polymeric multiphase materials.

2. Tissue Engineering: Understanding polymer-cell interactions, and the signal and substrate requirements for cell proliferation and tissue regeneration in three dimensions to create functional tissues.


Application Procedure: Please forward application materials (cover letter, CV with a list of references, and other supporting materials) to:

Dr. Peter X. Ma
Department of Biologic and Materials Sciences
Children's Hospital of Philadelphia
Pediatric Cardiology Research Laboratory
Philadelphia, Pennsylvania

Qualifications: Doctorate. Experience in molecular biology, protein and nucleic acid biochemistry, signal transduction, and cell culture is helpful. All strong candidates will be considered.

Description: A position is available immediately, under the sponsorship of a National Institutes of Health Training Grant, to study the molecular genetic control of the extracellular matrix in cardiovascular development and disease. The main projects in the lab focus on cardiac valve disorders molecular mechanisms of cardiac arrhythmias, and gene delivery systems.

Application Procedure: Please send a C.V., summary of research interest and the names of three references to:

Robert J. Levy, M.D.
Director, Cardiovascular Research
The Children's Hospital of Philadelphia, and Abramson Pediatric Research Center -1107
34th & Civic Center Boulevard
Philadelphia, PA 19104-4399
Phone: (215) 590-4788
Fax: (215) 590-5454
EMail: levyr@email.chop.edu

For more about Children's Hospital of Philadelphia, visit http://www.chop.edu

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Technical Director
Testing/Consulting Firm
Location: Northeastern Ohio

Qualifications: Doctorate in Polymer Science, Polymer Engineering or Chemistry desired. Qualified candidates should have a minimum of 15 years experience in the polymer, rubber, or plastics industry.

Responsibilities: High-profile position to be responsible for coordination of technical publications, presentations, and symposia. Individual will also provide professional consulting services and will lend technical support on testing projects.

Application Procedure: Please mail resumes and salary requirements to:

Stephen C. Davis
Davis Personnel, Inc.
P.O. Box 5365
Akron, OH 44334-0365
Phone: (330) 836-9343
Fax: (330) 836-9422

Bone Tissue Engineering
IsoTis BV
Utrecht
THE NETHERLANDS

Qualifications: Ph.D., and high scientific caliber with a background in either materials science, chemical engineering, biomaterials, tissue engineering, bioengineering, cell biology or a related discipline is desired.

Responsibilities: You will be placed in the bone tissue engineering team to perform experiments, generate new ideas and when necessary guide both technicians and Ph.D. students in their research tasks.

About IsoTis BV: IsoTis BV is a private biotechnology/medical devices company in The Netherlands. The company is involved in the field of tissue engineering and substitution medicine, and maintains collaborations with various international academic institutions, including MIT.

Application Procedure: Please mail or email your CV to:

Dr. Joost de Bruijn, Senior Research Scientist
IsoTis BV
Prof. Vronkhorstiaan 10-D
Gene Regulation in Viruses
Leading Biotech Company
Location: New York

Qualifications: The candidate should possess a Ph.D. degree in the Biological Sciences, 3 years postdoctoral experience and 2-5 years industrial experience. The candidate should have a very strong background in Molecular Biology focusing on mechanisms of eukaryotic transcription regulation and experience with high-level expression of recombinant proteins in mammalian cells. The ideal candidate will develop systems that facilitate the study of structure/function relationships in ligand-receptor models.

Responsibilities: A scientist is needed to work in a lab that is working with technology development systems that deal with regulation in viruses. This position will focus on all aspects of mammalian expression. We would like to explore and develop new expression vectors for transient and stable expression, new selection and amplification methods, and evaluate/develop new expression systems.

Application Procedure: Contact:

Barry Gilfillan
Diedre Moire Corporation
Phone: (609) 584-8733 ext. 235
Fax: (609) 584-9575
EMail: 915613@candseek.com

Materials Development Engineers/Scientists (2)
Ceramem Corporation
Waltham, Massachusetts

Qualifications: We seek two materials development engineers with doctoral degrees and 0 to 5 years experience. Strongly desirable areas of technical expertise include ceramic processing, electrical and mechanical properties of ceramics, surface chemistry sol-gel chemistry, electrochemistry, photocatalysis, and heterogeneous catalysis. Applicants may have degrees in disciplines including materials science, ceramics, chemical engineering, chemistry or mechanical engineering. Preferred individuals would be practical, creative experimentalists, and have excellent communication skills (especially written).
Responsibilities: Serve as Principal Engineers on projects involving (a) development of advanced ceramic materials and devices and (b) development of novel catalytic processes and reactors.

Application Procedure: Please submit applications to:

Ceramem Corporation
Human Resources Dept.
12 Clematis Avenue
Waltham, MA 02453
Fax: (781) 899-6478
EMail: ceramem@ceramem.com

For more about Ceramem, visit http://www.ceramem.com

Leading Tissue Engineering Firm
Location: Northeastern US

Qualifications: Seeking an individual with pharmaceutical, biotech or medical device industry experience. This position requires a M.S./Ph.D. in Polymer Chemistry/Biochemical Engineering with a solid knowledge of collagen/polymer chemistry and associated analytical techniques. It also requires 3-7 years experience in the medical or biomedical device industry developing collagen based biomaterials, products and test methods. The ideal candidate should be knowledgeable of bovine-derived products, hide processing, purification and cross-linking technologies as well as related characterization techniques. Candidate should be familiar with cGMP/GLP practices.

Responsibilities: This individual will report to the Director of Biomaterials and Engineering and will be responsible for coordinating and executing multiple collagen and/or other biomaterial-based programs directed toward development, assessment, analysis and/or implementation of collagen purification systems, raw materials, release assays and alternative cross-linking technologies.

Application Procedure: Please contact:

Larry Chiaravallo
Diedre Moire Corp, Inc.
Phone: (609) 584-9000 ext.216
Fax: (609) 584-9575
EMail: 915603@candseek.com

Environmental Consultants (2+)
Environmental Resources Management
New Orleans Louisiana
Qualifications: We are searching for the nation's top graduates who have chosen to pursue a career in an environmental field. Our interest is to hire those individuals who have demonstrated their potential through high grades and a rigorous curriculum in engineering, geology or environmental studies. Currently we are interviewing Master's Degree candidates who graduated in the spring of 1999 and are ready for a full-time career opportunity in consulting.

About Environmental Resources Management: The ERM Group is a global environmental, health and safety consulting firm that was founded in 1978. We currently have more than 100 offices in 24 countries throughout North and South America, Europe and the Asia Pacific Region constituting a unique global network of environmental specialists. Together, we total more than 3,000 professionals who provide policy, management, and technical advice on environmental issues. The ERM Group offers practical operational solutions to government agencies and private industries throughout the world in the areas of air, wastewater, and hazardous waste. Our team of professionals has been built under a set of guiding principles that include technical excellence, professional integrity, and a commitment to providing practical and cost-effective environmental solutions to our clients.

Application Procedure: If you are interested in being considered for an entry-level position with the ERM Group, you may apply by contacting our hiring partner, Fusion Staffing Services. Fusion is a national staffing company that specializes in the environmental health and safety industry and is responsible for ERM's recruiting needs in the Southwest region of the United States. For immediate consideration, please send your resume and college transcripts to (fax or EMail preferred):

Trevor Diehl  
Fusion Staffing Services  
16300 Katy Freeway, Suite 300  
Houston, TX 77094  
Phone: (281) 578-2800  
Fax: (281) 578-2886  
EMail: fusionsw@earthlink.net

For more information about Fusion Staffing Services, visit http://www.fusionstaffing.com

For more information about ERM, visit http://www.erm.com

Analytical Chemist/Department Head  
Leading Pharmaceutical Firm  
Region: North Carolina (US)
Qualifications: The candidate will possess a Ph.D. in Analytical Chemistry, Chemistry, Biochemistry or related field with relevant pharmaceutical or bio-tech experience. This person should possess strong leadership, interpersonal, verbal and written communication skills and be capable of directing the work of a staff in a wide range of scientific expertise.

Responsibilities: Seeking a Scientist who will lead a department of Analytical Chemistry. The candidate will be responsible for performance planning, employee development and performance reviews of department members. This person will also make recommendations about capital equipment and staffing levels for the department.

About the Firm/Department

Our client is a leading pharmaceutical firm with research facilities in North Carolina and can provide excellent benefits (health insurance, dental, and vision plan, paid vacation and more). A high-impact, high-profile position with excellent opportunity for advancement. The department develops and implements analytical technology in support of Research, including large and small molecule mass spectrometry, NMR spectroscopy, separations, optical spectroscopy, protein sequencing and characterization of post-translational modifications and proteomics.

Application Procedure: Please contact:

Shane Smith
Diedre Moire Corporation
Phone: (609) 584-9000 ext 218
Fax: (609) 584-9575
EMail: 915608@candseek.com

Associate Research Scientist
Leading Biotech Firm
Region: Northeastern US

Qualifications: We are seeking a B.S./M.S.-level scientist with 2+ years experience in a pharmaceutical or biotech company involved in clinical manufacturing. Experience in fermentation, downstream processing, GMP's and scale-up are required, as is a working knowledge of protein purification. Ultrafiltration/Microfiltration and SOP writing is a plus. Additional skills needed: Tissue culture; bioreactor operation; aseptic technique; column chromatography.

About the firm: We are a leading biotech company involved in the development of novel therapeutics and vaccines for the treatment of cancer, HIV and diseases of the immune system. We offer an outstanding opportunity to work with leading scientists in the areas of cancer, virology and immunology. In addition, we offer an excellent package including competitive salary and outstanding benefits that include stock options, ESOP, 401(k) and tuition reimbursement.
Application Procedure: Please contact:

Larry Chiaravallo  
Diedre Moire Corporation  
Phone: (609) 584-9000 ext. 216  
Fax: (609) 584-9575  
EMail: 915603@candseek.com

Analytical Chemists (2+)
Leading Developer of Therapeutics/Diagnostics  
Region: Mid-Atlantic States (US)

Qualifications: The candidate will have an M.S. (analytical chemistry), pharmaceutical sciences or a closely-related discipline and 4+ years, B.S. and 6+ years relevant experience in the pharmaceutical industry. Experience with such analytical techniques as chromatography (HPLC, GC) spectroscopy (UV, IR) and knowledge of cGMP's and good laboratory techniques is required.

Responsibilities: We are seeking several analytical chemists to support developmental efforts. The individual will provide methods, development, validation and analytical support. In addition they will prepare detailed reports of experiments and SOP's.

Compensation: We offer a competitive package including benefits and relocation.

Application Procedure: Please contact:

Larry Chiaravallo  
Diedre Moire Corporation  
Phone: (609) 584-9000 EXT. 216  
Fax: (609) 584-9575  
EMail: 915603@candseek.com

Research Associate
Leading Drug Developer

Qualifications: We are currently seeking a research associate at the B.S./M.S. level with 2 years experience in human or mammalian cell culture techniques, including organ harvesting and performing immunology techniques including elisa, proliferation and migration assays.

Responsibilities: You will be an integral part of the discovery efforts of novel therapeutics.
Course X News for September, 1999

About the firm: We are a leading developer of anti-angiogenic drugs used in the treatment of cancer, rheumatoid arthritis, and other diseases. We offer an outstanding package including excellent benefits and stock options as well as the opportunity to work in a dynamic, entrepreneurial environment on the cutting edge of therapeutic discoveries.

EMail: 915603@candseek.com

Research Scientist
Leading R & D Company
Region: Westchester County, NY

Qualifications: We are seeking a Research Scientist at the B.S./M.S. level with 2 years experience in fermentation, process development and scale up, downstream processing and cGMP's. Additional exposure to protein purification, ultrafiltration/microfiltration and SOP writing a plus.

About the Firm: We are a leading research and development company discovering unique and effective therapies and vaccines for conditions ranging from HIV to melanoma and other cancers. We offer an outstanding package including excellent benefits and the opportunity to work in a dynamic, entrepreneurial environment on the cutting edge of therapeutic discoveries.

To apply: Please contact:

Frank Kraus
Diedre Moire Corporation
Phone: (609) 584-9000 EXT. 234
Fax: (609) 584-9575
EMail: 915612@candseek.com

Quality Engineer
Leading Producer of Life Science Research Products
Region: Mid-Atlantic State

Qualifications: The candidate must possess a minimum of a B.S. degree in Statistics and two years of industrial experience in a Quality role, within a biotech, pharmaceutical or related industry.

Responsibilities: We are seeking a Quality Engineer to design and conduct quality measurements including design of experiments, regression testing, data analysis, stability studies, etc.

About the firm: A global leader in the production of products used in life science research. We offer a competitive salary, world class benefits, bonus plan and a chance to work on a dynamic team who truly values their Human Resource.
Application Procedure: Please contact:

Larry Chiaravallo
Diedre Moire Corporation
Phone: (609) 584-9000 ext. 216
Fax: (609) 584-9575 EMail: 915603@candseek.com

Materials Scientists/Process Engineers
Imation
Oakdale, Minnesota

Materials Scientists

We are seeking Materials Scientists who can formulate polymeric coatings containing pigments and develop the understanding of pigment-binder interactions and its influence on product properties.

Process Engineers

We are seeking Process Engineers who can develop thin film coating, dispersion and slitting technologies.

For Both Types of Positions

We are in the Data Storage and Information Management business, a spin-off of 3M, and we are looking for talented and motivate individuals who are seeking a career in the fast-growing information industry. We are based in the Twin Cities area (Minneapolis/St. Paul) and have a state of the art R & D facility employing over 800 scientists/engineers. B.S. - Ph.D. and Post-Doc candidates are welcome to apply and no citizenship requirements need to be met.

Application Procedure: Interested candidates should contact:

Dr. Subodh Kulkarni
Imation
Discovery-1D-20
1 Imation Place
Oakdale, MN 55128
EMail: skulkarni@imation.com

For more about Imation, visit http://www.imation.com

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### Academic Opportunities

**Assistant/Associate Professor**  
Department of Chemical Engineering  
University of Massachusetts/Amherst  
Amherst, Massachusetts

Qualifications: Ph.D. in Chemical Engineering or equivalent qualifications and commitment to excellence in teaching and research are required.

Responsibilities: Duties in undergraduate and graduate teaching establishment of a research program with supervision of graduate students, fund raising, and publication of original results at meetings and in refereed journals.

Preferred Research/Teaching Foci: Open.

Application Deadline: Complete applications should be received by December 1, 1999 for full consideration; applications will be accepted thereafter until the position is filled.

Application Procedure: Please send a resume, statement of teaching interests, research plan, and arrange for three letters of reference directly to:

Chair, Faculty Search Committee  
Department of Chemical Engineering  
University of Massachusetts/Amherst  
Amherst, MA 01003-3110  
Phone: (413) 545-2507  
Fax: (413) 545-1647  
EMail: mmalone@ecs.umass.edu

**Assistant Professor**  
Department of Chemical Engineering  
McGill University  
Montreal, Quebec  
CANADA

Qualifications: Applicants must have a doctoral degree in Chemical Engineering and be eligible for membership in a professional Order of Engineers. They should demonstrate evidence of outstanding
potential for teaching and research.

Responsibilities: The successful candidate is expected to participate effectively in teaching at all levels and to develop a vigorous, independent research program.

Preferred Research/Teaching Foci: We are particularly interested in the research areas of polymers and control, but excellent candidates in any research area are encouraged to apply.

About the department: The successful candidate will join a high-profile department of 14 tenured staff, almost 300 undergraduate students, about 85 graduate students. We have just moved into a new building and can offer an excellent infrastructure for both teaching and research.

Application Procedure: Send resume, names of three references and elaboration concerning research and teaching interests to:

Prof. R. J. Munz, Chair
Department of Chemical Engineering
M.H. Wong Building
McGill University
3610 University Street
Montreal, QU
CANADA, H3A 2B2
Phone: (514) 398-4494
Fax: (514) 398-6678
EMail: dept@chemeng.lan.mcgill.ca

For more about ChemE at McGill University, visit http://www.engineering.mcgill.ca/chem/index.htm

For more about ChemE at UMass/Amherst, visit http://www.ecs.umass.edu/che/

Multiple Faculty Positions (2+)
Department of Chemistry
Washington University
St. Louis, Missouri

Responsibilities: Duties will include launching or propagation of an outstanding research program and participation in the teaching of core chemistry courses at both the undergraduate and graduate levels.

Application Deadline: Applications for positions at the Assistant Professor level should be sent as soon as possible and must be received by October 15, 1999 to ensure review by the Search Committee. Late applications will, however, be considered until the end of the search. Candidates should arrange for three
letters of reference to be received by October 15th.

Application Procedure: Applications from candidates for Assistant Professorships are expected to consist of curriculum vitae and one or more concise research proposals.

Address all materials to:

Faculty Search Committee
Department of Chemistry
Campus Box 1134
Washington University
One Brookings Drive
St. Louis, MO 63130-4899
Phone: (314) 935-6530
Fax: (314) 935-4481
EMail: gaspar@wuchem.wustl.edu

For more about Chemistry at Washington University at St. Louis, visit http://www.chemistry.wustl.edu

**Director of Biomedical Materials Engineering Science**
N.Y. State College of Ceramics at Alfred University
Alfred, New York

Qualifications: The candidate should hold a Ph.D. in Biomedical Engineering or a closely-related field, have a distinguished research scholarship and publication record, and have a strong commitment to engineering education on the graduate and undergraduate levels. The successful candidate must have enthusiasm to provide leadership for a new M.S. and eventually, Ph.D. degree programs.

About the School of Ceramic Engineering and Materials Science: The School of Ceramic Engineering and Materials Science offers B.S., M.S. and will offer, Ph.D. programs in Ceramic Engineering, Materials Science and Glass Science. The NSF Industry/University Center for Biosurfaces, together with the NSF Industry/University Center for Glass Research, the NYS Center for Advanced Ceramic Technology and the Whiteware Research Center underpin annual sponsored research of more than $4M.

Application Procedures: Nominations are encouraged. Submit letters of application, together with resume and list of three references to:

Prof. William C. LaCourse
New York State College of Ceramics
Alfred University
2 Pine Street
Alfred, NY 14802
Faculty Position: Semiconductor Materials Processing
Department of Chemical Engineering
Pohang University of Science and Technology
Pohang
REPUBLIC OF KOREA

Qualifications: Applicants must have post-doctorate research or teaching experiences of minimum one year or more (or some other professional experiences that can be counted as equivalent).

Application Deadline: Applicants should submit the following documents by September 30, 1999:

1. Curriculum vitae (with a recent photo)
2. List of publications, together with reprints or preprints
3. Statement of research interests and plans
4. Certificates of academic records and transcripts (Bachelor's, Master's, Ph.D.)
5. At least three letters of recommendation to be sent directly to the following address:

Office of Academic Affairs
Pohang University of Science and Technology
San 31 Hyoja-dong
Pohang 790-784, Kyungbuk
Republic of Korea
Phone: (011) 82-562-279-2426
Fax: (011) 82-562-279-2430
EMail: recruit@postech.ac.kr

For more about Pohang University of Science and Technology, visit http://www-ce.postech.ac.kr

Korean (Hangui) version: http://www.postech.ac.kr

Tenure-Track Faculty Position
Department of Chemical Engineering
Auburn University
Auburn University, Alabama
Qualifications: Ph.D. in Chemical Engineering. The successful candidate will demonstrate a strong commitment to both excellent research and excellent teaching.

Preferred Research/Teaching Foci: We are open to outstanding individuals in any research area with special interest in process control, process systems, materials, bio, etc.

Application Procedure: Candidates should send a resume, description of future research plans, previous research accomplishments, teaching interests, and names of three references to:

Dr. Robert P. Chambers, Head
Chemical Engineering Department
Auburn University, AL 36849-5127
Phone: (334) 844-4827
Fax: (334) 844-2063
EMail: chambers@eng.auburn.edu

For more about ChemE at Auburn University, visit http://www.eng.auburn.edu/department/che/

Assistant Professors (2+)
Department of Chemical Engineering
Indian Institute of Science
Bangalore
INDIA

Qualifications: The prospective candidates must have a Ph.D. in the relevant areas with three years of post-doctoral research experience (may be relaxed in exceptional cases), and preferably be below 35 years of age.

About IIS: Indian Institute of Science, Bangalore, is a premiere Institute of higher learning and research in India. It has more than 40 departments/centers/units and nearly 450 faculty members pursuing research in many areas of science and engineering.

The Department of Chemical Engineering is exclusively devoted to postgraduate education and research. This permits more time for research in comparison with other educational institutions and we are interested in candidates desirous of utilizing such an opportunity. Ours is a small department with 11 faculty members. At present, we have 23 research students enrolled in the M.Sc. (Engg) and Ph.D. programmes. In addition, we have a one and one-half year M.E. program based on course work, and project work of six months duration.

Application Procedure: Interested candidates may please send their detailed resume, a brief plan of the research work envisaged, xerox copies of transcripts of undergraduate and post-graduate courses, names,
postal and EMail addresses, and fax numbers of at least three references to:

Prof. K. Kesava Rao, Chairman  
Department of Chemical Engineering  
Indian Institute of Science  
Bangalore 560012  
INDIA  
Phone: (011) 91-80-3092341  
Fax: (011) 91-80-3341683  
EMail: kesava@chemeng.iisc.ernet.in

For more about ChemE at IIS/Bangalore, visit http://www.chemeng.iisc.ernet.in

For more about IIS/Bangalore, visit http://www.iisc.ernet.in

**Assistant Professor/Bioresource Engineering (2)**  
Department of Chemical and Bio-Resource Engineering  
University of British Columbia  
Vancouver, British Columbia  
CANADA

Qualifications: Applicants should have a Ph.D. in Chemical Engineering or in a closely-related field and have a strong commitment to effective teaching in one or more of the following areas: process design and simulation, hydrocarbon processing, and environmental engineering. Relevant industrial experience would be an asset and eligibility for registration as a Professional Engineer is essential. The successful candidates must have the ability and commitment to initiate a vigorous research program in chemical engineering which compliments the research areas listed below.

Preferred Research/Teaching Foci: The Department offers graduate programs leading to the degrees of M. Eng, M.A. Sc. and Ph.D. in several important areas of chemical engineering including: fluidization, pulp and paper, biotechnology, environmental engineering, biomedical engineering thermodynamics, transport phenomena, electrochemical engineering, biomedical engineering, thermodynamics transport phenomena, electrochemical engineering, polymer processing, catalysis and process control.

Application Procedure: Applications including a C.V., a short statement of teaching and research interests, and the names and addresses of at least three references should be sent to:

Dr. A.P. Watkinson, Head  
Department of Chemical and Bio-Resource Engineering  
The University of British Columbia  
2216 Main Mall  
Vancouver, BC
Qualifications: The candidate must hold a bachelor's degree in Chemical Engineering and a Ph.D. in Chemical Engineering or in a related area, and must be a Registered Professional Engineer at the time of the appointment. Outstanding candidates with a commitment to excellence in research and teaching are being sought. The successful candidate will be expected to develop and maintain an innovative, externally-funded research program. The successful candidate should be bilingual (French/English) and able to teach courses in both languages.

Preferred Research/Teaching Focus: Candidates with a background in biotechnology or biomedical engineering are especially welcome.

Application Deadline: The Faculty plans to fill this position by January 1, 2000 or earlier. Applications should be received by August 20, 1999.

Application Procedure: Applicants should send a complete resume, a one-page research proposal, and a list of three individuals willing to provide references with their addresses, telephone and/or fax numbers and EMail addresses to:

Dr. Tyseer Aboulnasr, P.Eng., Dean
Faculty of Engineering
University of Ottawa
P.O. Box 450, Station A
Ottawa, Ontario
K1N 6N5
CANADA
Phone: (613) 562-5772
Fax: (613) 562-5172
EMail: aboulnas@genie.uottawa.ca

For more about ChemE at the University of Ottawa, visit http://www.eng.uottawa.ca/
Publication Schedule

Your news items, faculty and student distinctions, as well as announcements, job postings and other information for the ChemE community are invited for the upcoming issue! Faculty, staff, students, alumni/ae --- what's the latest exciting development in your lab? Perhaps you recently returned from a fascinating trip, professional conference, or participated in an honorary lecture series, or received a notable award. Don't be shy -- the Course X community wants to hear the latest about you! Here are the dates for the fall issues of the Course X News:

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<th>Issue Date</th>
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<td>Monday, October 4th</td>
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Thanks To...

Professor Bob Armstrong, Elaine Aufiero, Arline Benford, Professor Howard Brenner, Dr. Mark Eykholt, Janet Fischer, and Erja Kajosalo for their contributions to this edition of the Course X News!

Submissions for the Course X News should be sent to:
Gregory Sands
Assistant for Publications
MIT Administrative Services, 8-328
77 Massachusetts Avenue
Cambridge, MA 02139
Phone: (617) 253-0949
Fax: (617) 253-9894 EMail: gsands@mit.edu