

# 2011 Biostatistics and Computational Biology Annual Newsletter

## Upcoming Events in 2012

- **January 19, 2012**  
Colloquium with Judith Lok, Ph.D. of Harvard School of Public Health
- **February 9, 2012**  
Colloquium with Dawn Woodward, Ph.D. of Cornell University
- **March 8, 2012**  
Colloquium with Haibo Zhou, Ph.D. of the University of North Carolina at Chapel Hill
- **April 19, 2012**  
Colloquium with Ian W. McKeague, Ph.D. of Columbia University
- **May 3, 2012**  
24th Charles L. Odoroff Memorial Lecture with Nancy Geller, Ph.D. of the National Heart, Lung, and Blood Institute's Office of Biostatistics Research and 106th Elected President of the American Statistical Association
- **June 10-14, 2012**  
CBIM Summer School in Computational Immunology - page 6
- **June 14-15, 2012**  
CBIM Symposium on Modeling Immune Responses from Complex Data - page 6

## Cornell University Scholar to Chair URM C Department of Biostatistics



**Robert L. Strawderman III, Sc.D.**, professor of Biological Statistics and Computational Biology and Statistical Science at Cornell University, and professor in the Department of Public Health at Weill-Cornell Medical College, has been named Chair of the Department of Biostatistics and Computational Biology at the University of Rochester Medical Center.

Pending approval by the UR trustees, Strawderman will start July 1, 2012. Strawderman replaces **David Oakes, Ph.D.**, interim chair and URM C professor of Biostatistics, who has been leading the department since the sudden death of **Andrei Yakovlev, M.D., Ph.D.**, in February 2008. Yakovlev pioneered a major expansion of the department beginning in 2002, to one of the best-funded in the country, and Oakes has continued to drive that momentum.

Biostatistics and Computational Biology is at the core of all research and plays a pivotal role in planning for future re-

search initiatives at the Medical Center, and Strawderman is an excellent choice to build on the legacy of Yakovlev and Oakes, said **Mark B. Taubman, M.D.**, dean of the University of Rochester School of Medicine and Dentistry.

"Dr. Strawderman is an outstanding scientist and a delightful person," Taubman said. "I look forward to his galvanizing our efforts in all areas of biomathematics."

Strawderman earned his master's and doctorate degrees in biostatistics from Harvard University, where he also received the Distinguished Alumni Award in 2008. He obtained a bachelor's degree in mathematics from Rutgers College. He was a faculty member at the University of Michigan from 1992 to 2000, before moving to Cornell.

"Dr. Strawderman brings to Rochester the vision of a great leader, the experience of a great scholar, the patience of a great teacher, and the thoughtfulness of a true collaborator," said **Robert G. Holloway, M.D.**, chair of the URM C search committee, and professor of Neurology, and Community and Preventive Medicine. "We are so delighted to have him join our faculty and lead the department and its faculty to new heights of scholarship, collaboration, and training."

Strawderman's major

research area is survival analysis, with a focus on problems involving recurrent event data. More generally, he is interested in statistical inference for point process data; outcome prediction in medicine, epidemiology and public health; evaluating the cost and quality of health care; demography and population studies; asymptotics (theory and approximation); and, various problems in statistical computing.

At Cornell he served as director of graduate studies for the fields of statistics and biometry, and director of the Statistics Core at Cornell Population Center. Since 1997 Strawderman also has continuously served as an associate editor at the *Journal of the American Statistical Association (JASA Theory & Methods)* and is an associate editor of *The Electronic Journal of Statistics*.

In addition, Strawderman is a member of the Scientific Advisory Board for Nature Source Genetics, an Ithaca, N.Y.-based company dedicated to solving computational and statistical problems related to biodiversity, quantitative genetics and breeding.

Strawderman said he recognizes the URM C's strong reputation for both its research and clinical enterprises and the inherent importance of maintaining a focused and thriving Biostatistics department to reach future goals. (con't. p.7)

## News from the Faculty



In May 2011, **David Oakes Ph.D.**, Professor and Interim Chair of the Department, served on an FDA panel

(Endocrinologic and Metabolic Drugs Advisory Committee) to review the findings of the Action to Control Cardiovascular Risk in Dia-

betes-Lipid (ACCORD-Lipid) Trial as they relate to the efficacy and safety of fenofibric acid (TRILIPIX).

Dr. Oakes is a member of the NIH Study Section "EPIC" (Epidemiology of Cancer) and participated in meetings of the Study Section in February, June and October.

Dr. Oakes presented a paper on "The CREST-E Study of Creatine in Huntington's Disease" at an invited session on Statistical Challenges in Complementary and Al-

ternative Medicine Research at the Joint Statistical Meetings held in Miami Beach, Florida, in August. Also during these Meetings, he was the discussant for an invited session on Residual Life Analysis. (It is probably coincidental that this session took place on the last day of the Meetings.)

In May 2011, Dr. and Mrs. Oakes welcomed a new family member, yellow labrador retriever puppy, Suzy Oakes.

**Mike McDermott, Ph.D.** was a Program Committee member and instructor for the Clinical Trial Methods Course in Neurology, an annual week-long



course held in Vail, Colorado. Funded by the National Institute of

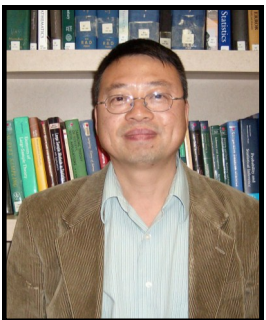
Neurological Disorders and Stroke, the course is dedicated to training junior neurology investigators in the design and conduct of early-phase clinical trials. He was also member of three Special Emphasis Panels for the National Heart, Lung, and Blood Institute.

Dr. McDermott published 13 papers in 2011 and the following article with Dr. Hua He: He H, McDermott MP *A robust method using propensity score stratifica-*

*tion for correcting verification bias for binary tests.* Biostatistics 2012 - 13(1):32-47.

He is the co-editor of a book now completed that will appear in Spring 2012: Ravina B, Cummings J, McDermott M, Poole M eds **Clinical Trials in Neurology: Design, Conduct, and Analysis.** Cambridge: Cambridge University Press.

**Dr. Hulin Wu** received an Administrative Supplement (for U.S. - China Biomedical Collaborative Research on Cancer, Allergy, Immunology, and Infectious Diseases including HIV/AIDS and its Comorbidities) to the NIH Grant R01 AI087135, "**Estimation Methods for Nonlinear ODE Models in AIDS Research,**" funded by NIAID/NIH, 2011-2012.



Dr. Wu participated in 7 NIH grant review panels in 2011, which included reviewing both large center grant applications and investigator-initiated grants (R03 and R01 grants).

In 2011, Dr. Wu published 12 papers (including papers accepted or in press); these include publications in *JASA*, *Biometrics*, *Annals of Applied Statistics*, *Statistica Sinica*, *Journal of Computational and Graphical Statistics*, biomathematical modeling journals such as *SIAM Review* and *Bulletin of Mathematical Biology*, and biomedical journals such as *Clinical Infectious Diseases*, *Journal of Immunology* and

*Journal of Virology.*

In 2011 Dr. Wu presented 14 invited seminars and talks at major universities and institutions, and national and international conferences and workshops.

Dr. Wu was invited to visit the Statistical and Applied Mathematical Science Institute (SAMSI), Research Triangle Park, North Carolina, for two months in Spring 2011, where he actively participated in the SAMSI program of the Analysis of Object Data (AOOD).

## News from the Faculty - continued



**Derick Peterson, Ph.D.** reports that it was an especially busy year in collaborative activities, with 5 cancer research papers and 5 heart research papers appearing in 2011, not counting additional papers (and grants) pending for next year.



**Dr. Sally W. Thurston** received a Distinguished Speaker Award from the Department of Biostatistics at the University of Buffalo School of Public Health and Health Professions. Dr. Thurston's October 2011 seminar, entitled "Bayesian Models for Multiple Out-

comes Nested in Domains and the Seychelles Child Development Study", was part of the University of Buffalo's Distinguished Women Scholars in Statistics 2011-2012 Seminar Series.

**Xueya Cai, Ph.D.**, graduated from SUNY Buffalo in 2008. After being a faculty member in the Division of Biostatistics, Indiana University School of Medicine, and then the Division of General Internal Medicine, University of Iowa Carver College of Medicine, she joined our Department as a Research Assistant Professor on October 1, 2011. Dr. Cai's research expertise focuses on clinical trials and health services research studies, and statistical methods to be applied in these areas.



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### PROMOTIONS in 2011

**Hulin Wu, Ph.D.**, Professor of Biostatistics and Computational Biology, of Medicine, and of Community and Preventive Medicine, has been appointed in addition **Dean's Professor**. This is in recognition of his contribution in helping to shape the life of the institution in a significant way. (July 2011)

**Susan Messing, M.A., M.S.**, was promoted to Sr. Associate. (July 2011)

**Christopher Beck, Ph.D.**, was promoted to Associate Professor of Biostatistics. (December 2011)

### Department Alumni were Elected Fellows of the American Statistical Association

This year two alumni were elected Fellows of the American Statistical Association (ASA). The recipients were recognized for their outstanding professional contributions to and leadership in the field of statistical science. The designation of Fellow has been a superlative honor in the ASA for more than 90 years. Individuals are nominated for the honor by fellow members and, to be selected, must have an established reputation and made outstanding contributions in some aspect of statistical work.

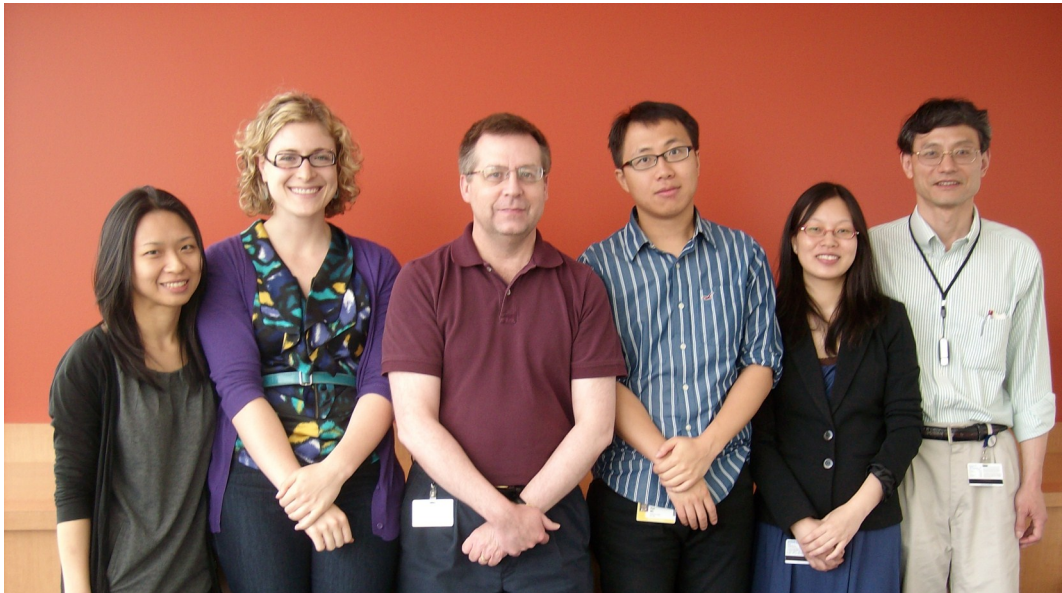
The two department alumni elected this year were **Alan Hutson** (1996), Professor and Chair of the Department of Biostatistics in the School of Public Health and Health Professions at the University at Buffalo, and **Aiyi Liu** (1997), Senior Investigator in the Biostatistics and Bioinformatics Branch of the National Institute of Child Health and Human Development.

## 2nd Annual Student Workshop - May 20, 2011

The second annual Statistics Ph.D. Student Workshop was held on Friday, May 20, 2011. The workshop included presentations by Ph.D. students

who had passed the Advanced Examination, but had not yet had or scheduled their Proposal (Qualifying) Examination. Each student presented his/her disser-

tation topic and provided some background and an update on the progress of his/her research.



From left to right: Juo-Fan (Iris) Chen, Katie Evans, Dr. Michael McDermott (program director), Pan Wu, Yao Yu, Dr. Xin Tu (advisor)

## 2011 Ph. D. Recipients



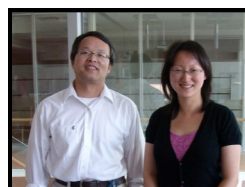
Jason LaCombe, with advisor Dr. Anthony Almudevar, successfully defended his thesis, "Non-Informative Priors for Structural Inference in Bayesian Networks", on April 13, 2011. Jason is at Nature Source Genetics, a computational genomics company located in Ithaca, NY.



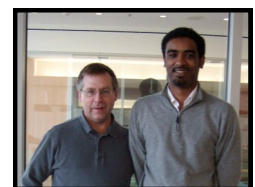
Tao Lu, with advisor Dr. Hulin Wu, successfully defended his thesis, "ODE Based Statistical Models for Dynamic Gene Regulatory Network Identification", on June 1, 2011.



Doug Gunzler, with advisor Dr. Xin Tu, successfully defended his thesis, "A Class of Distribution-free Models for Longitudinal Mediation Analysis", on July 28, 2011. Doug is now a Senior Instructor at Case Western Reserve University.



Xiang Liu, with advisor Dr. Hua Liang, successfully defended her thesis, "Penalized Variable Selection for Semiparametric Regression Models", on September 12, 2011. Xiang is now a Research Statistician at Abbott Laboratories.



Saria Awadalla, with Dr. Michael McDermott (co-advisor with Dr. Govind Mudholkar), successfully defended his thesis, "Some Contributions to the Theory and Applications of R-Symmetry", on December 9, 2011.

## First Year Ph.D. Students



**Donnie Hebert**

Donnie Herbert received his Bachelor's degree in Mathematics and Adolescent Education in Math from SUNY Oswego. Donnie is a native of Hilton, N.Y.



**Chang Liu**

Chang Liu received his Bachelor's degree in Econometrics with a minor in Finance, from Shanghai University of Finance and Economics, and a Master's Degree in Statistics from Columbia University. Chang's hometown is Jilin, China.



**Ziji Yu**

Ziji Yu received her Bachelor's degree from Renmin University of China. Ziji's hometown is Daqing, Heilongjiang Province, China.



**Katherine Grzesik**

Katherine Grzesik earned her Bachelor's degree in Mathematics and Adolescent Education in Math from SUNY Oswego. Kathy's hometown is Utica, N.Y.



**Kyra Singh**

Kyra Singh received her Bachelor's degree in Economics and Statistics with a minor in Psychology from Carnegie Mellon University. Kyra's hometown is Audubon, Pennsylvania.

### Student Awards, Presentations and Travel

**Katherine Grzesik**, first year student, presented at the 2011 Joint Mathematics Meeting "A Poisson Approximation for the Number of  $k_1$ -Matches".

**Katie Evans**, a fourth year student, received a travel award to attend the Case Studies in Bayesian Statistics and Machine Learning Workshop at Carnegie Mellon University, where she presented her poster, "Instabilities when Clustering Non-Normal Data".

**Xiang Liu** received the Institute of Mathematical Statistics Laha Travel Award to attend the 2011 Joint Statistical Meetings in Miami, FL.

## Center for Biodefense Immune Modeling (CBIM)

### Summer School in Computational Immunology

June 10-14, 2012

University of Rochester Medical Center

Rochester, New York

NIH-funded University of Rochester Center for Biodefense Immune Modeling (Hulin Wu, Co-Director) will host a 4.5 day summer school on computational immunology. The summer school is intended for experimental immunologists who desire an introduction to mathematical/ computational modeling techniques and their applications to problems in immunology. Travel support applications for students and postdocs are available. For more information, see the summer school website: <https://cbim.urmc.rochester.edu/education/2012-summer-school/>.

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### Symposium on Modeling Immune Responses from Complex Data

June 14-15, 2012

University of Rochester Medical Center

Rochester, New York

NIH-funded University of Rochester Center for Biodefense Immune Modeling will host a symposium on modeling immune responses with three main themes: 1) bioinformatics modeling for immunology; 2) bridging immunology and mathematics; and 3) bridging immunological data and mathematical models--statistical methods. Invited plenary speakers are Fiona Brinkman (Simon Fraser University), Rob de Boer (Utrecht University), Elizabeth Halloran (University of Washington), Alan Perelson (Los Alamos National Lab), and Eberhard O. Voit (Georgia Tech). Travel support applications for students and postdocs are available. For more information, see the symposium website: <https://cbim.urmc.rochester.edu/education/2012-symposium/>.

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### New additions to the Division of Biomedical Modeling and Informatics Group

**Jinhai Chen, PhD, Postdoctoral Fellow**, whose research background is in numerical optimization.

**Na Lu, PhD, Postdoctoral Fellow**, whose research focuses on medical image processing, statistical analysis, feature extraction and pattern recognition.

**Joseph Guido, MS**, is a new **Research Faculty Associate**. He provides biostatistical programming and analysis support for the Center for Biodefense Immune Modeling (CBIM), the Developmental Center for AIDS Research (D-CFAR) and the New York Influenza Center for Excellence (NYICE). Previously, he taught graduate courses in Applied Statistics using The SAS® System from 1999-2011 in the Public Health Program of the School of Medicine and Dentistry, served as Chair of the Genesee Valley SAS Users

Group (GVSUG) from 2007-2011 and is currently on the GVSUG executive board.

**Ana Rojas, PhD, Postdoctoral Fellow**, whose research focuses on molecular simulations of proteins, particularly small peptides that form insoluble aggregates known as amyloids.

**Jennifer Dutra, Research Assistant**, provides database development and support for the Bio-Lab Informatics Server (BLIS) and manages several large center projects. She has a BA in Computer Science and Mathematics and has over 15 years of programming and database experience.

**James Seckler, PhD, Postdoctoral Fellow**, whose area of research is in structural dynamics.

## Other Department Related News

### A.S.A.

This year the **Rochester Chapter of the American Statistical Association** was reinvigorated. Members of the chapter's new executive board are: President, Ernest Fokoue of Rochester Institute of Technology; VP, Linda Battaglia of Harris Interactive; Secretary, Bruce Blaine of St. John Fisher College; and Treasurer, Tanzy Love of our department. The chapter plans to hold two events before the end of the current academic year. In February, they held a seminar of "little bites" at St. John Fisher with several short presentations of statistical methods in practice aimed at a wide audience.

### Seychelles Child Development Study

This year, Professors **Sally Thurston, Li-Shan Huang, Tanzy Love, and Chris Beck** worked on projects in the study assisted by programmer **Joanne Janciuras**, master's level statistician **Don Harrington**, and Ph.D. student **Katie Evans**. This collaboration produced one book chapter and five papers appearing in the **Journal of the American Dental Association, Neurotoxicology, Neurotoxicology and Teratology, Neuroepidemiology, and Environmental Research**. These included papers coauthored with alumni **Miranda Lynch** (Ph.D. 2011), **Doug Gunzler** (Ph.D. 2011), and **Abbie Stokes-Riner** (Ph.D. 2010).



Members of the International Chinese Statistical Association at the 2011 JSM banquet, August 3 in Miami, FL. From left: **Kelly Zou** (earned a Ph.D. in statistics from the University of Rochester in 1997, supervised by Professor **W. Jackson Hall**), Nancy Geller, Naisyin Wang, Jinguo Gao, and **Aiyi Liu** (earned a Ph.D. from the department in 1997 and was also advised by Professor **W. Jackson Hall**).

*We would like to thank the International Chinese Statistical Association for permission to reproduce this photo from this bulletin.*

### Continued from front page...

"The opportunity to step into such an important and challenging leadership role is very exciting," he said. "I look forward to working with the department faculty and Medical Center leadership to implement a shared vision of excellence that further enhances our value and elevates the department to a new level of national prominence." The URM Department of Biostatistics and Computational Biology has 21 tenured or tenure-track faculty, two fully funded training grants from the National Institutes of Health in biostatistics for environmental health sciences and HIV/AIDS, and a consulting service for URM faculty on study design and data management. Total funding to the department from 2004 to 2010 was \$51 million.

"I am thrilled that Dr. Strawderman will be joining the department," Oakes said, "and I am convinced that he will be a strong, effective, and supportive leader."

*(Article furnished by Leslie Orr)*

## 23rd Charles L. Odoroff Memorial Lecture

**Amita K. Manatunga, Ph.D.** was the speaker for the 23rd Charles L. Odoroff Lecture held on Thursday, May 26, 2011. Dr. Manatunga lectured on “A Framework for the Assessment of Disease Screening Instruments in Mental Health”. She earned her Ph.D. in 1990 from the University of Rochester under the direction of Dr. David Oakes. Presently, Dr. Manatunga is a professor at Emory University in the Department of Biostatistics and Bioinformatics.



Dr. Amita K. Manatunga (left) with **Setta Odoroff**

## 2011 Yakovlev Fall Colloquium\*



On September 29, 2011, the department hosted **Xihong Lin, Ph.D.** from Harvard School of Public Health, Harvard University, who was the speaker of the 2011 Yakovlev Fall Colloquium, fourth in the series. Dr. Lin lectured on “Statistical Issues and Challenges in Analyzing High-throughput ‘Omics’ Data in Population-Based Studies.” Xihong Lin (left) is pictured with **Nina Yakovlev**.

*\*To honor Dr. Andrei Yakovlev’s major contributions to the department, our first colloquium each academic year is dedicated to his memory*



## 2011 Brown Bag Seminars

**March 17—Xiang Liu**

“Variable Selection in Semiparametric Cure Models based on Penalized Likelihood”

**October 6—David Oakes**

“When Subtraction Equals Multiplication: the Proportional Odds Model with an Anchor”

**October 17—Jack Hall**

“Efficient Inference for Differences between Paired Observations”

**October 27**

**Jason Morrissette**

“Order Restricted Analysis of Covariance with Unequal Slopes”

**December 1—Ana Rojas**

“Molecular Dynamics of Amyloid Fibrils”

**December 8—Nikolay Balov**

“Discrete Network Analysis of Continuous Gene Expression Data”

**December 13—Xing Qiu**

“RINO: A Robust Interchangeable Normalization Method for Testing Differential Expressions”

**December 22—Rui Chen**

“Estimation and Identifiability for Discretely Observed Age-Dependent Branching Processes”

**Dr. Tanzy Love, Ph.D.**, Assistant Professor of Biostatistics approached the students with a scenario and a question:

“You are one day going to be an alumnus and the other alumni will be part of your professional network. So, it’s great that they get a chance to see your name and maybe, they’ll remember you later. I’d like you to give me one sentence answering this question—What was your favorite assignment or project this year?”

**Kyra Singh** — “My favorite assignment was a homework we completed on different types of ANOVA analyses and model designs. Choosing appropriate models is interesting to me and I felt the assignment could definitely be applicable to real research scenarios. I really enjoyed this topic!”

**Katherine Grzesik** — “My favorite project as a first-year student was getting to know my fellow classmates.”

**Katie Evans** — “As the exciting initial step in my thesis research, I’ve greatly enjoyed determining the features of the Seychelles Children Nutrition data which make it difficult to apply current clustering methods.”

**Chang Liu** — “My favorite homework assignment this semester, so far, is to do simulations in Stochastic Processes, while it is painful to program of course, but it will make you feel so great when everything else works out.”

**Jason Morrissette** — “My favorite project was coding a simulation that took over a week and a half to run.”

**Changming Xia** — “My reading class about complex network models for HIV/AIDS epidemics spreading with Dr. HaYoun Lee is very interesting.”

**Amit Chowdry** — “My favorite project was working with Dr. McDermott to analyze a crossover clinical trial for the management of spinal stenosis.”

**Thanh Tran** — “My favorite project was assisting Dr. Sally Thurston with her consulting project related to the effects of marriage/child rearing on women’s testosterone level!”

**Tian Chen** — “I passed the basic exam and learned something about how to call C in R.”

**BIostatISTICS  
AND  
COMPUTATIONAL  
BIOLOGY**

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department and the new  
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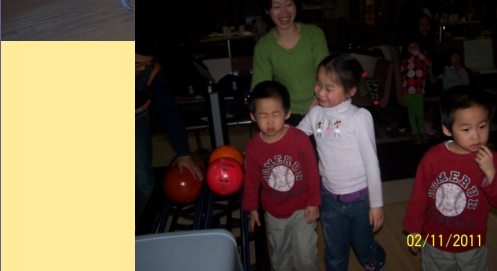


UNIVERSITY of  
**ROCHESTER**  
MEDICAL CENTER

## Department Activities

### 2011 Winter Family Celebration at Clover Lanes

On Friday, February 11, 2011 the department held a family celebration at Clover Lanes with over 90 bowlers.



### 2011 Summer Picnic at Buckland Park

The summer picnic, on August 26th, was later than usual, but enabled the new students to mix and meet with the department.

