



# **ANNUAL REPORT**

## **Graduate Program in Operations Research**

**July 1, 2007—June 30, 2008**

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## **I. Students**

### **A. Enrollment**

During Fall 2007 semester fifty-eight (58) students were enrolled in the Operations Research Program consisting of thirty-three (33) Ph.D. students, thirteen (13) MS and twelve (12) MOR students. Of these, nineteen (33%) were new, twenty-two (38%) were female, five (9%) were African American, and twenty-two (38%) were US students.

In Spring 2008 no new students were admitted, four (4) graduated decreasing the enrollment to fifty-four (54). In Spring 2007 there were thirty-three (33) Ph.D. students, thirteen (13) MS and eight (8) MOR students.

The enrollment summary is provided in APPENDIX A, and a breakdown of OR students classified by department codes is show in APPENDIX B.

### **B. Degrees Conferred**

The program was very productive during the academic year. It graduated a total of twenty-one (21) students [five (5) Ph.D., twelve (12) MOR, four (4) MS] in Operations Research (including those who graduate in Summer 2008). The names of the graduating students, the degrees awarded and student advisors are listed in APPENDIX C.

### **C. Recruiting**

The Operations Research Admission Committee consisted of Drs. Denton (ISE), Devetsikiotis (ECE), Sivaramakrishnan (Math), Fathi (ISE) and Medhin (Math). The program received ninety-four (94) applications for admission for Fall 2008 (an 17% decrease compared with 2007). From these applicants, seventy-six (76) students were accepted for admission, and from these, we expect seventeen (17) students will start their program at the beginning of the Fall Semester. A complete breakdown of the list of applicants in various categories is included in APPENDIX D.

### **D. Awards and Honors**

The qualifications and performances of the OR students were well recognized. Seven (12%) of the students received scholarships or fellowships during the academic year. The list includes Dean's Fellowship and United States Army scholarships.

Ben Lobo won the Elmaghraby Award and four (4) students were inducted into the Omega Rho International Honor Society. The complete list of honors and awards received by OR students is included in APPENDIX E.

In October 2007 the INFORMS Student Chapter Annual Award Committee chose the North Carolina State University Student Chapter of INFORMS to receive the INFORMS Student Chapter Annual Award *Magna Cum Laude*. This is the second highest distinction given to a student chapter and recognizes the outstanding achievements of the OR chapter in 2006. A plaque was presented at the INFORMS conference during Fall 2007 and was received by Zohreh Asgharzadeh Talebi.

Dr. Constance Ann Lightner (MSc in OR 1997, Ph.D. 2000) received the UNC Board of Governors Award for Teaching Excellence. Dr. Lightner is associate professor and interim chair of the Department of Management at Fayetteville State University. She received a commemorative bronze medallion and a \$7,500 cash prize during a recognition luncheon held in conjunction with the Board's May 9th meeting. Dr. Lightner's Ph.D. dissertation in Operations Research was supervised by Dr. Shu-Cherng Fang.

### **E. Ph.D. Qualifying Exam**

The Ph.D. Qualifying Exam was administered during the week of August 13-17, 2007. A total of eleven (11) students registered for the exam. Seven students passed unconditionally and four with conditions. The names of the students and the examining committee are provided in APPENDIX F.

### **F. Student Support**

During the 2007-2008 academic year, thirty-four (33) students were supported (22 on teaching assistantships and 11 on research assistantships). The details of the TA/RA assignment are given in APPENDIX G. The OR program would like to recognize the following departments for their support: Civil Engineering, College of Management, Computer Science, Industrial and Systems Engineering, Mathematics, Statistics and Zoology.

### **G. Ph.D. Candidates**

During this academic year the following students passed their preliminary Ph.D. exams: Zohreh Asgharzadeh Talebi (May 2008), Zhe Liu (February 2008), Wei Wan (October 2007). Carin Lightner, Yipeng Yang, Wei Wan, Xinmin Wu and Qing Zhang completed their Ph.D. degrees during the 2007-2008 academic year.

### **H. Other Activities**

The following students served as officers of the Student Chapter of INFORMS: Adam Rudolph (President), Ben Lobo (Vice-President), Pratik Mehta (Treasurer) and Ayca Erdogan (Secretary). In Spring semester Natalia Viktorovna replaced Pratik as Treasurer.

## **II. Faculty**

### **A. Co-Directors**

Under the organizational structure reflecting the interdisciplinary nature of the Operations Research programs at NC State, Dr. Negash Medhin (Mathematics) and Dr. Yahya Fathi (Industrial and Systems Engineering) continued to serve as co-directors of the Operations Research Program.

### **B. Membership**

The OR faculty consisted of fifty-eight (58) faculty members who have their academic appointments in 10 participating departments: Industrial and Systems Engineering (11), Mathematics (14), Computer Science (11), Statistics (4), Civil Engineering (4), Electrical and Computer Engineering (4), Mechanical and Aerospace Engineering (1), Management (5),

Forestry (1), and Textiles (3). A listing of OR faculty members and academic departments is included in APPENDIX H.

### **C. Honors and Awards**

The Graduate Program in Operations Research at North Carolina State University was ranked 7<sup>th</sup> in the nation in faculty scholarly productivity for 2007. The index, published Nov. 16 in *The Chronicle of Higher Education*, compiled statistics on book and journal publications, research grants, and honors and awards to rate 375 American universities with PhD programs.

A research team led by Dr. George F. List, professor and head of the Department of Civil, Construction, and Environmental was recognized for its innovation by the Intelligent Transportation Society of America (ITS America) in a ceremony held at the society's 2007 Annual Meeting and Exposition on June 5<sup>th</sup>.

Dr. Rada Y. Chirkova, Associate Professor, was granted the IBM University Partnership Program Award for 2007. Dr. Munindar P. Singh, Professor, was awarded the IBM Faculty Award for 2007. Dr. Ting Yu, Assistant Professor, won the National Science Foundation Faculty Early Career Award – 2008.

Dr. George Rouskas, professor of computer science received a 2007 IBM Faculty Award.

Dr. Shu-Cherng Fang, Walter Clark Chair and Alumni Association Distinguished Graduate Professor in the Edward P. Fitts Department of ISE, worked to coordinate two symposia arranged to assist Beijing Summer Olympics organizers in addressing potential issues ranging from transportation to trash recycling to terrorism during summer 2008.

### **D. Research and Publications**

Not all faculty members participate to the same extent in the OR program; indeed some are only tangentially involved. This makes it difficult to provide accurate statistics on the activities of the OR faculty body. For a complete listing of research and publications of each faculty member please see the corresponding departmental annual report. Also the OR website includes links to all OR faculty personal web pages.

### **E. Faculty Meetings**

Two faculty meetings were held in Fall 2007 and Spring 2008 semester. The minutes of these meetings are appended to this report as APPENDIX I.

## **III. Administration and Staff**

### **A. Personnel**

Ms. Barbara Walls continued as OR Program Assistant.

## **B. Facilities and Equipment**

Items purchased for student offices and computer labs included computers, black and white printer, duplex color printer, two Dell notebook computers, camera and chairs for student offices and computer lab. A color printer was purchased for the co-director's office. Detailed items are listed in APPENDIX J.

## **C. Seminar Series**

Eight speakers were invited to give talks to OR students in Fall 2007 and seven speakers were invited in Spring 2008. All seminars were well attended. A detailed listing of seminars is given in APPENDIX K.

## **D. OR Program Review**

An external review of the program was held in Spring 2008. The review committee consisted of Dr. Holthausen and Dr. Mike Carter from NCSU and Dr. Shanthikumar from University of Berkeley. The review took place on April 24 and 25, 2008. A copy of the self-study report is in Appendix L. A copy of the reviewer's report is in Appendix M.

The following faculty members served on an advisory committee for the review:

- Dr. Xiuli Chao
- Dr. Salah Elmaghraby
- Dr. Shu-Cherng Fang
- Dr. Ralph Smith
- Dr. Hien Tran

## **IV. Recommendations and Concerns for the Future**

The current structure of the OR program appears to function well. However, the support from COE, PAMS and the participating departments is essential to maintain program stability and quality.

**APPENDIX A**  
**OR Student Enrollment Summary**

<b>Enrollment</b>	<b>Fall 2007</b>	<b>Spring 2008</b>
Total	58	54
Continued	39	54
New	19	0
Male	36	32
Female	22	22
PhD	33	33
MS	13	13
MOR	12	8
NC/Resident	9	7
USA	13	14
International	36	33

## APPENDIX B Students

<u>Name</u>	<u>Degree</u>	<u>Code</u>
Abdelijawad, Karmel F.	MOR	OR
Allen, Shanae	MS	ORM
Arney, Kristin	MS	OR
Asgharzadeh Talebi, Zohreh	DR	ORC
Blair, Edward Tilden	MOR	OR
Carter, Matthew	MOR	ORM
Deshpande, Amogh	DR	ORI
Ding, Chian-Fen	DR	ORM
Erdogan, Saadet Ayca	DR	ORI
Everette, Jeffrey	DR	ORI
Fickler, Michael	MOR	OR
Fink, J. Kingsley	MS	ORI
Frank, Dennis	DR	ORS
Gandhi, Nishit	MOR	ORI
Hodge, Ronald	MOR	ORI
Huang, Rong	DR	OR
Kabo, Adam	MOR	OR
Karimi, Sahar	DR	ORM
Kim, So Yeon	DR	ORM
Koehler, Erin	MS	ORM
Kramer, Jeremy	MS	ORM
Lightner, Carin Ann	DR	ORI
Lin, Frank (Yu-Min)	DR	ORI
Liu, Ning	DR	ORC
Liu, Zhe	DR	ORI
Lobo, Benjamin	MOR	ORM
Mahale, Rahul	MOR	ORC
Mason, Jennifer	MS	ORM
Mears, Curtis	MS	OR
Mehta, Pratik	MOR	ORI
Nanavati, Krunal	MS	OR
Norouzi, Amirhosein	DR	ORI
Osborne, Susan	DR	OR
Parker, Erica	MS	OR
Peng, Yuanyuan	DR	ORM

<b><u>Name</u></b>	<b><u>Degree</u></b>	<b><u>Code</u></b>
Piper, Brian	MS	ORM
Ramakrishnan, Suja	MS	ORI
Rudolph, Adam	MS	ORM
Sabouri, Alireza	DR	OR
Salazer-Adams, Jason	MOR	ORS
Sayyady, Fatemeh	DR	ORD
Sheikh, Najeeb	MOR	OR
Shih, Cheng-Hau	DR	ORM
Sullivan, Eric	MS	ORM
Viktorovna, Natalia	DR	ORI
Wan, Wei	DR	ORM
Wang, Hui	DR	ORS
Wen, Zhi	DR	OR
Wu, Xinmin	DR	ORG
Wynter, Sharolyn	DR	OR
Yang, Song	DR	ORS
Yang, Yipeng	DR	ORM
Yaylali, Emine	DR	ORI
Yu, Lu	DR	ORI
Zhang, Jingyu	DR	ORM
Zhang, Qing	DR	ORC
Zhang, Yuan	DR	OR
Zhang, Zhe	DR	ORC

**APPENDIX C**  
**Graduate Degrees Awarded**

<b>December 2007</b>		
<b>Graduate</b>	<b>Degree</b>	<b>Advisor</b>
Blair, Ed	MOR	Dr. Yahya Fathi
Everette, Jeffrey	MOR	Dr. Yahya Fathi
Gandhi, Nishit	MOR	Dr. Yahya Fathi
Mehta, Pratik	MOR	Dr. Yahya Fathi
Peng, Yuanyuan	MOR	Dr. Dmitry Zenkov
Sheikh, Najeeb	MOR	Dr. Yahya Fathi

<b>May 2008</b>		
<b>Graduate</b>	<b>Degree</b>	<b>Advisor</b>
Fickler, Mike	MOR	Dr. Yahya Fathi
Hodge, Ronald	MOR	Dr. Yahya Fathi
Kabo, Adam	MOR	Dr. Yahya Fathi
Lobo, Ben	MOR	Dr. Thom Hodgson
Rudolph, Adam	MS	Dr. Salah Elmaghraby
Salazer-Adams, Jason	MOR	Dr. Salah Elmaghraby
Wu, Xinmin	PhD	Dr. Robert Handfield
Zhang, Qing	PhD	Dr. Yu

**August 2008**

<b>Graduate</b>	<b>Degree</b>	<b>Advisor</b>
Arney, Kristin	MS	Dr. Thom Hodgson
Fink, Kingsley	MS	Dr. Thom Hodgson
Lightner, Carin	PhD	Dr. Shu-Cherng Fang
Sullivan, Eric	MS	Dr. Kartik Sivaramakrishnan
Wan, Wei	PhD	Dr. Negash Medhin
Yang, Yipeng	PhD	Dr. Tao Pang/Dr. Robert Buche
Yu, Lu	MOR	Dr. Shu-Cherng Fang

**APPENDIX D**  
**Recruiting – Fall 2008**

	<b>Applicants</b>	<b>Admitted</b>	<b>Enrolled</b>
Number of Applicants	94	76	
PhD Students	58	55	
MS Students	31	18	
MOR Students	5	3	
Male	71	56	
Female	23	20	
International	75	57	
US	19	19	

<b>Admission Committee</b>	
Dr. Brian Denton	Member
Dr. Michael Devetsikiotis	Member
Dr. Kartik Sivaramakrishnan	Member
Dr. Yahya Fathi	Co-Chair
Dr. Negash Medhin	Co-Chair

**APPENDIX E**  
**Student Honors and Awards**

<b>Student</b>	<b>Scholarships</b>
Koehler, Erin	College of Engineering Dean's & University Provost Fellowship
Mason, Jennifer	College of Engineering Dean's Fellowship
Wynter, Sharolyn	College of Engineering Dean's Fellowship, University Provost Fellowship & NASA – Harriet G. Jenkins Pre-doctoral Fellowship
Arney, Kristen	United States Army
Everette, Jeffrey	United States Army
Fink, J. Kingsley	United States Army
Mears, Curtis	United States Army
Blair, Edward	SAS Corporation

<b>Student</b>	<b>Honor Societies &amp; Awards</b>
Liu, Ning	Omega Rho International Honor Society
Peng, Yuanyuan	Omega Rho International Honor Society
Rudolph, Adam	Omega Rho International Honor Society
Zhang, Yuan	Omega Rho International Honor Society
Lobo, Ben	Dr. Elmaghraby Distinguished Student

**APPENDIX F**  
**August 2007 Qualifying Exam**

**Exam Committee:**

Linear Programming, Dr. Kartik Sivaramakrishnan  
Nonlinear Programming, Dr. Shu-Cherng Fang  
Stochastic Processes, Dr. Xiuli Chao  
Dynamical Systems, Dr. Steve Campbell  
Dynamic Programming, Dr. Salah Elmaghraby

**The following students took the 2007 Qualifying Exams:**

Erdogan, Ayca  
Everette, Jeffrey  
Frank, Dennis  
Kim, So Yeon  
Liu, Ning  
Norouzi, Amirhosein  
Peng, Yuanyuan  
Yu, Lu  
Wen, Zhi  
Zhang, Jingyu  
Zhang, Yuan

**APPENDIX G**  
**OR Student Assistantships 2007-2008**

Source	Fall 2007			Spring 2008		
	TA	RA	Total	TA	RA	Total
Operations Research	5	2.5	7.5	5	2.5	7.5
Civil Engineering	0	.5	.5	0	.5	.5
College of Management	0	1	1	0	1	1
Computer Science	1	3	4	1	3	4
Industrial Engineering	3	2	5	3	4	7
Mathematics	12	1	13	11	1	12
Statistics	1	0	1	1	0	1
Zoology	0	1	1	0	1	1
<b>Totals</b>	<b>22</b>	<b>11</b>	<b>33</b>	<b>21</b>	<b>13</b>	<b>34</b>

Type of Support	Fall 2007	Spring 2009
TA and Fellowship	2	2
TA	20	19
RA	11	13
Fellowship only	1	1
Self Supported	18	14
Other	5	4
<b>Totals</b>	<b>57</b>	<b>53</b>

## APPENDIX H

### OR Faculty

<u>Name</u>	<u>Department</u>
John Baugh	Civil Engineering
Richard H. Bernhard	College of Management
Bibhuti Bhattacharyya	Statistics
E. Downey Brill	Civil Engineering
Robert Buche	Mathematics
Stephen L. Campbell	Mathematics
Rada Chirkova	Computer Science
Brian Denton	Industrial & Systems Engineering
Mike Devetsikiotis	Electrical and Computer Engineering
Salah E. Elmaghraby	Industrial & Systems Engineering
Shu-Cherng Fang	Industrial & Systems Engineering
Yahya Fathi	Industrial & Systems Engineering
Subhashis Ghosal	Statistics
Robert Handfield	College of Management
Robert E. Hartwig	Mathematics
Thom J. Hodgson	Industrial & Systems Engineering
Duncan M. Holthausen	College of Management
Thomas L. Honeycutt	Computer Science
Ilse Ipsen	Mathematics
Kazufumi Ito	Mathematics
Julie Ivy	Industrial & Systems Engineering
Jeffrey Joines	Textiles
Michael G. Kay	Industrial & Systems Engineering
C. T. Kelley	Mathematics
Russell E. King	Industrial & Systems Engineering
Zhilin Li	Mathematics
George List	Civil Engineering
Negash Medhin	Mathematics
Carl D. Meyer	Mathematics
Arne A. Nilsson	Electrical and Computer Engineering
Tao Pang	Mathematics
Harry Perros	Computer Science
S. Ranji Ranjithan	Civil Engineering
Michael Rappa	College of Management
Thomas W. Reiland	Statistics

**Name**

Stephen Roberts  
Joseph P. Roise  
George N. Rouskas  
Carla D. Savage  
Munindar P. Singh  
Ralph C. Smith  
Charles E. Smith  
Matthias F. Stallman  
William J. Stewart  
Moon W. Suh  
Kristin Thoney-Barletta  
Hien T. Tran  
Reha Uzsoy  
Ioannis Viniotis  
Mladen A. Vouk  
Wenye Wang  
Don Warsing  
James R. Wilson  
Fen Wu  
Ting Yu  
Zhao-Bang Zeng  
Dmitry Zenkov

**Department**

Industrial & Systems Engineering  
Forestry  
Computer Science  
Computer Science  
Computer Science  
Mathematics  
Statistics  
Computer Science  
Computer Science  
Textiles  
Textiles  
Mathematics  
Industrial & Systems Engineering  
Electrical and Computer Engineering  
Computer Science  
Electrical and Computer Engineering  
College of Management  
Industrial & Systems Engineering  
Mechanical & Aerospace  
Computer Science  
Statistics  
Mathematics

**OR Faculty Emeritus**

John W. Bishir  
Joseph C. Dunn  
Robert E. Funderlic  
Clarence J. Maday  
David F. McAllister  
Henry L. Nuttle  
Elmor L. Peterson

Mathematics  
Mathematics  
Computer Science  
Mechanical & Aerospace Engineering  
Computer Science  
Industrial & Systems Engineering  
Mathematics

# APPENDIX I

## OR Faculty Meeting Minutes

**November 20, 2007**

**Attendees:** Dr. Yahya Fathi , Dr. S.C. Fang, Dr. Negash Medhin, Dr. Kartik Sivaramakrishnan, Dr. Charles Smith, Dr. Duncan Holthausen, Adam Rudolph (Student Representative) and Barbara Walls (OR Program Assistant).

Dr. Fathi opened the meeting.

Adam Rudolph (Informs Student Representative) talked about student chapter activities during the current academic year. The student chapter organized a Fall get-together at Mitch's in September and is planning a bowling party for students and faculty on December 4<sup>th</sup>. Adam also announced that the NCSU student chapter of INFORMS was awarded a plaque for the outstanding student chapter at the annual meeting in Seattle. The students are now working on creating a website for the organization, writing a newsletter and maintain a "get to know you" board. They are also working on tee shirt designs. Officers for 2007-2008 are President – Adam Rudolph, Vice-President – Ben Lobo, Treasurer – Pratik Mehta and Secretary – Ayca Erdogan. Pratik Mehta will be graduating in December 2007 and they are seeking a replacement for that position.

Faculty meeting minutes from Spring 2007 were reviewed by those in attendance and were accepted.

The annual report was distributed and Dr. Fathi reviewed some of the appendices with the faculty. He also summarized the statistics for Fall 2007 enrollment. Presently there are 56 registered students in the program and of these 19 are new to the program. There are 34 male and 22 female student; 32 PhD and 24 master's; NC residents are 8; US – 14 and International – 34. Six MOR degrees will be awarded for Fall 2007. In 2006-2007 the number of degrees were MOR – 8, MS – 3 and PhD – 5 for a total of 16.

Dr. Fathi also noted that applications for Fall 2007 were up approximately 10% over the previous year. Dr. Kartik Sivaramakrishnan (Math), Dr. Xiuli Chao (ISE) and Dr. Michael Devetsikiotis (ECE) served on the application committee along with Dr. Fathi and Dr. Medhin (co-directors).

Dr. Fathi reviewed the 2007 qualifying exam results. A total of ten students took the exam. Eight students passed the exam and two failed. Dr. Fang, Dr. Sivaramakrishnan, Dr. Chao, Dr. Campbell and Dr. Elmaghraby served on the exam committee.

Last year both Dr. Uszoy and Dr. Rappa were approved for the OR faculty. This year Dr. Brian Denton (ISE), Dr. Julie Ivy (ISE) and Dr. Dimitry Zenkov (Math) were nominated for the OR faculty. All three candidates were unanimously approved.

Dr. Medhin presented the progress on the program review and he stated that the program review report is almost complete. He solicited comments from the faculty regarding the preparations of the upcoming program objectives, enrollment, mission and summary comments. The suggestion was made that OR students be surveyed by INFORMS officers regarding these questions. Discussions ensued regarding various initiatives that could be included in the program review.

In connection with the Advanced Analytics program at NCSU, chaired by Dr. M. Rappa, Dr. Fathi reported that during the fall semester 2007, Dr. Elmaghraby taught a module in this program on Introduction to Operations Research and Dr. Stallman taught a module on Discrete Optimization. For the next academic year the OR program plans to continue its collaborations with the Advanced Analytics program.

There was no new business from the floor and the meeting was adjourned at 5:00 pm.

#### **April 24, 2008**

**Attendees:** Dr. Yahya Fathi , Dr. S.C. Fang, Dr. Negash Medhin, Dr. Kartik Sivaramakrishnan, Dr. Duncan Holthausen, Dr. Brian Denton, Dr. Julie Ivy, Dr. Downey Brill, Dr. John Baugh, Dr. Moon W. Suh, Dr. Salah Elmaghraby, Adam Rudolph (Student Representative) and Barbara Walls (OR Program Assistant).

Dr. Fathi opened the meeting.

Faculty meeting minutes from Fall 2007 were reviewed by those in attendance and were accepted.

Dr. Fathi reported on the number of current students and applicants for Fall 2008. He reported that in academic year 2007-2008 there are 56 students, 19 of them entering in Fall 2007. Of these 56 there are 34 male and 22 female; 32 PhD and 24 Masters; and 22 US and 34 International. We awarded six MOR degree in Fall 2007, and we expect to award 5 MOR, 2 PhD, and 1 MS degrees in the Spring semester 2008.

Dr. Fathi also noted that applications are down this year with 88 applications received and so far 71 students admitted. The breakdown on the 88 applications is as follows: 56 PhD applicants; 30 MS applicants and 2 MOR. There were 68 male and 20 female applicants; 73 International and 15 US applicants. The admission committee was comprised of Dr. Brian Denton (ISE), Dr. Kartik Sivaramakrishnan (Math), Dr. Michael Devetsikiotis (ECE), Dr. Negash Medhin (OR Co-Director) and Dr. Yahya Fathi (OR Co-Director). It was noted that the rate of acceptance among applicants with financial offer was relatively lower than previous years. Dr. Ivy stated that University of Michigan gives outstanding candidates an offer for all four years. Dr. Moon mentioned that many departments on campus offer a 12 month stipend that is more than what OR is offering. It was suggested that OR divide up their pool of money into fewer slots in order to raise the stipend, Dr. Fathi explained that was difficult to do since OR has several departments providing the funding.

It was announced that qualifying exams will be given on August 11<sup>th</sup> through 15<sup>th</sup> in 2008. The committee will be as follows: Linear Programming – Dr. Fang; Non-Linear Programming - Dr. Kartik Sivaramakrishnan; Dynamical Systems – Dr. Campbell; Dynamic Programming - Dr. Bernhard; and Stochastic Processes – Dr. Ivy. It was requested that members of the committee provide details about the structure of the test to Barbara before exam registration next month.

The Graduate Program Review will be held April 24<sup>th</sup> and 25<sup>th</sup>. Documents (self-study report and meeting agenda) have been emailed to all faculty and all appendices are available upon request. The review committee is scheduled to meet with the faculty as an integral part of the review process. All faculty and students are invited to attend the meeting on April 24<sup>th</sup> and April 25<sup>th</sup> as specified in the agenda. Dr. Brill and Dr. Fang suggested that faculty personally invite students to this meeting, Dr. Elmaghraby noted that the Deans of COE and PAMS both are sending representatives to the meetings and are not attending personally.

Regarding student funding, Dr. Suh stated that it should not totally be left up to the departments but the co-directors should approach the deans of other colleges for such funding. Dr. Elmaghraby made the point that co-directors can't talk to the Deans of other colleges. Faculty in those departments need to take the issue to their deans.

Dr. Fathi explained to the group about the governing council of OR. It includes the Dean of the Graduate School (chair), Dean of PAMS, Dean of COE, Department Heads of CSC, Math, Statistics and ISE. This governing council is responsible for setting policies and oversees all activities of the OR program.

Dr. Fathi presented a draft proposal for a dual PhD degree with Monterey Institute of Technology and asked the faculty if they were supportive of him taking the proposal forward. Dr. Fang stated that many such programs exist around the world and strongly supported the proposal in order for NCSU to stay competitive and to attract outstanding students. Dr. Medhin suggested that we discuss this subject further with the department heads and DGP's of the supporting departments. Several issues regarding the nature of the dual programs were discussed. A motion was made by Dr. Fang and seconded by Dr. Denton in support of the co-directors consulting with the participating departments and follow-up.

Dr. Fathi reported that Dr. Linda Krute has contacted the OR program with regard to establishing a distance education program. Dr. Fathi will further discuss the subject with her and report to the OR faculty in the Fall.

Adam Rudolph (Informs Student Representative) talked about student chapter activities during the current academic year. The student chapter will have a Spring picnic on April 24<sup>th</sup> at Pullen Park. They have designed and purchased tee shirts for sale to students. Officers for next year have been elected and will be announced at the picnic. The Elmaghraby award for 2007-2008 will be presented to Ben Lobo.

There was no new business from the floor and the meeting was adjourned at 5:30 pm.

## **APPENDIX J**

### **Equipment Acquired**

<b><u>Equipment</u></b>	<b><u>Location</u></b>
Color printer	Co-Director's office
Printer table	Co-Director's office
2 Dell Notebook Computers	Co-Director's office – student use
Color printer	Burlington Lab
4 computer chairs	Burlington Lab
7 Dell Inspiron XPS M1530 Computers	Burlington Lab
HP4250N printer	Burlington Lab
Camera	Co-Director's office – student use

## **APPENDIX K OR Seminar Series**

### **Fall 2007**

- Aug 28, 2007 Welcome Back/Orientation
- Sep 11, 2007 Dr. Reha Uzsoy, Edward P. Fitts Department of Industrial & Systems Engineering, NCSU  
"Production Planning with Resources Subject to Congestion"
- Sep 21, 2007 Dr. Brian Denton, Edward P. Fitts Department of Industrial and Systems Engineering, NCSU  
"Stochastic Optimization of a Multi-OR Surgical Suite"
- Sep 25, 2007 Dr. William L. Rutz, Engineering Director, Global Energy Decisions  
"Advances in Optimizing Electric Power Dispatch using Mathematical Programming"
- Oct 2, 2007 Dr. David Y. Gao, Dept of Mathematics, Virginia Tech  
"Canonical Duality Theory: A Potentially Powerful Methodology for Solving Challenging Problems in Global Optimization and Complex Systems"
- Oct 23, 2007 Dr. Hien Tran, Dept of Mathematics, NCSU  
"Parameter Estimation Techniques and Model Validation"
- Oct 30, 2007 Dr. Hien Tran, Dept of Mathematics, NCSU - continued from Oct 23rd  
"Parameter Estimation Techniques and Model Validation"
- Nov 13, 2007 Dr. Julie Ivy, Edward P. Fitts Department of Industrial and Systems Engineering, NCSU  
"Assessing Dynamic Breast Cancer Screening Policies"
- Nov 27, 2007 Dr. Miguel F. Anjos, Department of Management Sciences, University of Waterloo, Canada  
"Large-Scale Fixed-Outline Floorplanning Design Using Convex Optimization"
- Nov 30, 2007 Dr. Joe Geunes, Industrial and Systems Engineering Department, University of Florida  
"Integrated Market Selection and Production Planning: Complexity and Solution Approaches"

## APPENDIX K OR Seminar Series

### Spring 2008

- Jan 18, 2008 Dr. James R. Wilson, ISE Department, NCSU  
"Steady-State Simulation Analysis Using ASAP3"
- Jan 29, 2008 Dr. Bahram Alidaee, School of Business Administration, The University of Mississippi  
"A Model for the Adaptive Preventive Maintenance System in a Multi-skilled Workforce Environment"
- Feb 5, 2008 Dr. Houtan Aghili, Senior Technical Staff Member, IBM Healthcare and Life Sciences  
"Building a Nationwide Health Information Network"
- Feb 13, 2008 Dr. Andrew Miller, Department of Industrial and Systems Engineering, University of Wisconsin - Madison  
"A Parallel Macro Partitioning Framework for Mixed Integer Programming"
- Mar 25, 2008 Dr. Elaine Chew, Radcliffe Institute of Advanced Study, Harvard University  
Associate Professor, Epstein Department of Industrial and Systems Engineering, Hsieh Department of Electrical Engineering, University of Southern California Viterbi School of Engineering  
"Music Science and the Mathematical Modeling of Tonality"
- Apr 1, 2008 Dr. Serhan Ziya, Department of Statistics and Operations Research, University of North Carolina  
"Priority Assignment under Imperfect Information on Customer Type Identities"
- Apr 15, 2008 Dr. Yahya Fathi, Professor of Industrial and Systems Engineering, North Carolina State University  
"Cutting-Stock Problems in the Wood Processing Industry"