

**New Jersey Institute of Technology
College of Science and Liberal Arts**

**Department of Chemistry & Environmental Science
Program Review**

The Department of Chemistry and Environmental Science was formed in 2001 at which time the department consisted of 10 faculty, 2 lecturers (1 part-time) and 1 chemistry lab instructor. Prior to 2001 Chemistry was treated as a service department within the larger department of Chemical Engineering in the Newark College of Engineering. Presently the department offers seven degree programs with the second largest enrollment in degree programs within the College of Science and Liberal Arts.

At the time of the division of Chemistry and Environmental Science from Chemical Engineering, the department was promised 4 new Teaching Assistants (TA's) in addition to the 6 that were carried over during the division of Chemical Engineering and Chemistry. We have received only 2 additional T/A lines and they were added in 2002.

Additionally, in 2002 the department was promised the immediate hire of two new faculty with biochemistry research backgrounds. Those lines were not approved in 2002.

In the 2003-04 A/Y two of the faculty members retired; Barbara Kebbekus who taught Analytical Chemistry and Environmental Science core courses and Donald Getzin who was the main Freshman Chemistry Lecturer and who taught more than 230 students each semester in the General Chemistry lectures and recitations.

Two new research faculty began in Fall 2004; one with start up funds and one without start up funds.

At this time the department has several major obligations to the University community including:

A Core Undergraduate Program including GUR courses and requirements for majors in:

Freshman Chemistry

Organic Chemistry

Analytical Chemistry / Instrumental Chemistry

Physical Chemistry / Physical Chemistry for Bio-Engineering

Biochemistry

A Core Undergraduate Program in Social Sciences including GUR courses was added in 2004/2005 with courses in:

HSS 202 – Society, Technology and Environment

HSS 201 - Economics

Two Undergraduate Degrees:

B.S Chemistry

B.S. Environmental Science

When the Environmental Policy Studies group joined the department this added one Associate Professor, 2 Assistant Professors and a Visiting Assistant Professor.

For the immediate future, the department has a major focus on building existing undergraduate programs as well as the addition of a new undergraduate program in Biochemistry.

Departmental Obligations and Faculty Support

Academic Year	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Total UG Students (Fall)	4909	5018	5112	5204	4933
Course					

Enrollments in Department GUR Courses

	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
HSS 202	796	767	639	504	562
faculty full time	6	6	4	3	2
SS 201	707	713	647	490	472
faculty full time	5	4	4	3	2
Chem I / II Total - Fall	380	419	453	539	576
Faculty full time *	2	2	2	2	2
* not include honors					
	Fall/Spring	Fall/Spring	Fall/Spring	Fall/Spring	Fall/Spring
Chem Labs - Frosh f/s	79/105	74/121	80/153	97/185	102/232
Total	184	195	233	282	334
Chem Labs Organic f/s	14/36	14/29	12/30	18/32	30/41
Total	50	43	42	50	71
Chem Labs Analytical f/s	18/15	18/11	13/13	33/19	29/25
Total	33	29	26	52	54
Chem Labs Physical f/s	18/6	16/19	17/13	6/3	14/25
Total	24	35	30	9	39
Total lab courses (a)					
Total number Chem & EvSc TA's*	na	10*	9*	9*	8*
*PhD level stipend					Decrease due to NJIT budget

Degree Programs Offered by Chemistry and Environmental Science

Program	Ph.D.	Masters	Bachelors
	Chemistry	Chemistry	Chemistry
	Environmental Science	Environmental Science	Environmental Science
	Environmental Policy	Environmental Policy	

The enrollments in undergraduate chemistry have grown slowly; but steadily, reaching some 11 new students signed up for fall 05. The total number of undergraduate students has reached approximately 33 as projected for fall 05.

The Ph.D. program in chemistry started in 2001 and rapidly grew to 7 students in 2001, where it has slowly increased to 10 in spring 2005. Despite a growing number of applications to the program over the past few years, the department is unable to attract these students due to a lack of available support funding. The Program has graduated 5 students with two additional graduations this May and several graduating this summer.

Table 1A: Entering Student Quality: GPA for applicants, admitted and enrolled students: CHEM+EPS+EVSC+OSIH¹

Applicants						Admitted						Enrolled					
2002F		2003F		2004F		2002F		2003F		2004F		2002F		2003F		2004F	
GPA	N	GPA	N	GPA	N	GPA	N	GPA	N	GPA	N	GPA	N	GPA	N	GPA	N
3.20	28	3.07	19	3.05	14	3.20	28	2.99	17	3.03	12	3.06	17	3.02	14	3.02	9
3.29	2	3.45	6	3.54	3			3.33	3	3.54	3			3.44	2	3.42	2
3.20	30	3.16	25	3.14	17	3.20	28	3.04	20	3.13	15	3.06	17	3.07	16	3.09	11

Table 1B: Entering Student Quality: GPA for applicants, admitted and enrolled students: CHEMISTRY ONLY²

Degree Type	Applicants						Admitted						Enrolled					
	2002F		2003F		2004F		2002F		2003F		2004F		2002F		2003F		2004F	
	GPA	N	GPA	N	GPA	N	GPA	N	GPA	N	GPA	N	GPA	N	GPA	N	GPA	N
MS	3.43	4	3.17	7	3.31	3	3.43	4	2.93	5	3.31	3	2.58	1	3.06	4	3.81	1
PHD			3.62	2														
Total	3.43	4	3.27	9	3.31	3	3.43	4	2.93	5	3.31	3	2.58	1	3.06	4	3.81	1

Table 1B: Entering Student Quality: GPA for applicants, admitted and enrolled students: EVSC ONLY

Program	Degree Type	Applicants			Admitted			Enrolled		
		2002F	2003F	2004F	2002F	2003F	2004F	2002F	2003F	2004F
EVSC	MS	3.03	3.05	3.12	3.03	3.05	3.12	2.90	3.05	3.12
	PHD	3.00	3.12	3.24		3.22	3.24		3.44	3.28
	Total	3.02	3.10	3.17	3.03	3.13	3.17	2.90	3.18	3.17

Table 1C: Entering Students by Gender and Degree Type: Chemistry Only

Degree Type	Gender	FY2001	Fy2002	FY2003	FY2004
Ph.D. Chem	Male	1		1	1
	Female	1			1
M.S. Chem	Male	2	5	1	2

¹ GPA for PhD applicants and enrollees was calculated only from the students who hold Master's degree.

² GPA for PhD applicants and enrollees was calculated only from the students who hold Master's degree.

	Female	2	1	1	2
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Table 1D: Graduate Enrollment by Program from Fall 2001- Spring 2005

Degree Type	F 2001	F 2002	F 2003	F 2004	S 2005
Chemistry M.S.	13	8	10	10	11
Chemistry Ph.D.	6	7	6	8	8
Chemistry Total	19	15	16	18	19
Environmental Science Ph.D	24	18	19	17	20
Environmental Science M.S.	32	33	34	23	27
Environmental Policy M.S.	17	19	26	25	23
OSIH	17	~26*			
Environmental Total	90	96	79	65	70

* program terminated by administration

Table 1E: Chemistry Graduate Enrollment by Gender: 2001- 2004

Degree Type	Gender	F 2001	F 2002	F 2003	F 2004
M.S.	Male	10	4	6	4
	Female	3	4	4	6
Ph.D.	Male	3	3	3	3
	Female	3	4	3	5

Table 1F: Chemistry Graduate Enrollment by Race F2001- F 2004

Degree Type	Race	F 2001	F2002	F 2003	F 2004
M.S.	Unknown	1			
	African American		2	3	2
	Asian	5	1	3	3
	Hispanic	3	1		
	White	2	2	3	5
	Foreign	2	2	1	
Ph.D.	Unknown				
	African American				
	Asian		1	1	
	Hispanic				
	White	1		1	1
	Foreign	5	6	4	7

The Average GRE scores 2001-2004

Math	700
Analytical	578
Verbal	450

Average G.P.A. in 2001-2004 - 3.457

Ratio of Attempted and Earned Credits 2001-2004 - 0.93

Table 1G: Graduate and Undergraduate Degrees Awarded 2001-2005

Degree Program	2001	AY 2002	AY 2003	AY 2004	AY 2005	AY 2006
Chemistry B.S.	2	1	5	1	0	4
Chemistry M.S.	4	6	2	4	3	0
Chemistry Ph.D.		0	1	2	1	
Environmental Science B.S.		1	3	0	0	
Environmental Science M.S.		6	10	23	10	
Environmental Science Ph.D.		3	6	3	3	
Environmental Policy M.S.		3	2	8	13	
O.S.I.H. *		5	9	2	-	
Total Degrees	6	25	38	43	30	

* Program terminated 2002

Environmental Science

The Department of Chemistry and Environmental Science was formed in 2001, but the Environmental Science Division of the former Chemical Engineering – Chemistry – Environmental Science Dept was strong from the Middle 1980's through the late 1990's when Environmental Science became a mature field.

Environmental Science had 3 Ph.D. students graduate in May 2005.

The Environmental Science Faculty has both undergraduate and graduate programs to foster. The undergraduate and graduate programs are both joint with Rutgers Newark. While the undergraduate enrollment is slowly increasing and we look to cooperation agreements with community colleges to result in substantial growth when they are completed.

The graduate programs have remained approximately steady at 55 students over the time since the departments' initiation. Part of this enrollment is at the NJDEP in Trenton, where we have an onsite education program for some 20 – 30 students per year.

DOCTOR of PHILOSOPHY in CHEMISTRY and in ENVIRONMENTAL SCIENCE

The primary mission of the Ph.D. programs in Chemistry and Environmental Science is to produce research articles that demonstrate a high level of science and graduates that exhibit thoroughness in their research, honesty in their presentations and papers, and possess sufficient knowledge in their specified field to compete for positions in industry and academe. Graduates will know the needed procedures and know that they need to keep up to date in their field.

Ph.D. Program Goals and Objectives

- (1) Graduate at least 5 PhD students a year by the end of the next five years
- (1) All full time PhD students will complete their requirements in 5 years or less

- (2) Graduates are to be capable of learning and working independently
- (3) Graduate will be able to find positions in their areas of chemistry
- (4) Each PhD graduate publish at least two research articles in respected refereed journals
- (5) Half of the PhD students will be involved (partially funded) in externally sponsored research

MASTER OF SCIENCE in CHEMISTRY

The Master of Science degree program in Chemistry has several objectives varying with the type of student:

- (i.) to prepare and motivate students to enjoy and understand chemistry and see value in further education (Ph.D.) and academic or industrial careers in their area.
- (ii.) to strengthen and upgrade the students' undergraduate education to that of a strong chemist capable of working successfully and learning independently as individuals in their target area of chemistry, within the many chemical industrial positions available. These students will serve to form strong industry – academic alliances for further interaction and benefit of both parties.
- (iii.) to improve and raise the level of fundamental understanding in chemistry and provide research knowledge of high school chemistry teachers, so they will better serve their students. These students will become important in interactive chemistry and HS education partnerships.

MASTER OF SCIENCE in ENVIRONMENTAL SCIENCE

The Master of Science degree program in Environmental Science has several objectives depending on the students' goals:

- (i.) To prepare and motivate students to enjoy learning and understanding fundamentals of chemistry and physics underlying environmental science and see value in your further education (Ph D) and academic or industrial careers in environmental science.
- (ii.) to strengthen and upgrade the students undergraduate education to that of a strong environmental scientist capable of working successfully and learning independently as individuals in their area of environmental science. These science and environmental policy majors will work in local, state and federal governmental offices, local and nationwide environmental science related businesses and in the academic community. These students will serve to form strong industry or government – academic alliances for further interaction and benefit of both parties.
- (iii.) to improve and raise the level of fundamental understanding in chemistry and provide research knowledge of k through 12 general science teachers, so they will better serve their students.

Masters Programs' Goal: Chemistry

Maintain steady enrollment growth to about 25 students in 2010 with approximately 40 percent going on for a PhD. A significant fraction is expected to be in the biochemistry area; with a smaller fraction being high school teachers as a result of advertising, magnet school science project support and interactions through Chemistry Olympics.

Masters Programs Objectives : Chemistry

- (1) The average Master's student will spend four semesters to complete the degree requirements.

- (2) Sixty percent of the MS students will be involved in research conducted at NJIT and thirty percent will publish papers with their advisors
- (3) Forty percent of the MS students will apply for PhD program at - NJIT
- (4) MS students will continue to find positions in local industry upon application.

Masters Programs Goal: Environmental Science / Policy

Maintain steady enrollment growth to about 40 students in 2010 with approximately 30 percent going on for a PhD. A significant fraction is expected to be in the environmental biochemistry area and another important fraction will be environmental Policy.

Masters Programs Objectives : Environmental Science / Policy

- (1) The average Master's student will spend four semesters to complete the degree requirements.
- (2) Forty percent of the MS students will be involved in research conducted at NJIT and twenty percent will publish papers with their advisors.
- (3) Thirty percent of the MS students will apply for PhD program at NJIT
- (4) MS students will find positions in local government, community and industry application.

Minimum Requirements in Chemistry and Environmental Science Graduate and Undergraduate Programs

- The data show that the chemistry and environmental science enrollments are small and building.
- The enrollments in all programs need to grow to become more self sufficient and justified for a program where the needed courses are provided only by the department.

We are targeting a minimum of 20 students per undergraduate and graduate class to achieve an acceptable course population goal and maintain the needed courses on the needed time schedules.

There are a number of strategies that the department is implementing which help the department provide the needed courses for the programs with limited number of students

- These strategies include.
 - Combining courses and students with NJIT dept of Env't engineering (Civil Engineering) and sharing the teaching load (J. Schuring and J Bozzelli are in discussions for this).
 - Adjusting and scheduling course offerings in concert with Rutgers Newark Chemistry and Earth Sciences Departments to allow students in similar programs to take course at one campus and have it meet core or elective requirements in all departments. This allows one department to teach a course for two or three departments and allows research faculty to address more students and better use their specialized teaching time and technical expertise.
 - Combining similar high level undergraduate courses with similar lower level graduate courses and adjusting the grading / assignment loading to cover the two courses within one.

The department also requests suggestions from the NJIT administration to help cover the needed courses with an optimum course enrollment and a reasonable teaching load on the research faculty.

Faculty

Faculty and Diversity

Race/Ethnicity	Male	Female	Total
Asian	4	1	5
Black	0	0	
Hispanic	0	0	
White	10*	3	13
India	2	0	2
Non-US			
Total	16	4	20

* 1 disabled

Faculty by Rank : Tenured -- 10

Tenure Track 5

Rank	Number
Distinguished Professor	2
Professor	4
Associate Professor	4
Assistant Professor	4
Special Lecturer	2
Research Professor	1
Professional Staff	1
Visiting Professor	1
Total	20

Faculty Promotions in 2001-2004

From Assistant Professor to Associate Professor – 0.

From Associate Professor to Professor – 0.

Faculty Research in 2004

Eighty five percent of the faculty are involved in externally funded research.

Number of faculty in department	Number of grantees	Research Grants \$ k	Average amount per grantee	Start up	INSTR
Chem – Faculty / Research	11	1350.	\$ (k) 129.	110. ^b	625 ^c
Chem – Lecturers / lab	4		-	-	
Env't / Policy / Research	4	350.	88.		
Env't Policy – Lecturer	1	-	-	-	
Overall Sum or Avg	20 (15)	1700.	113. (d)	110.	

() Tenure, tenure track or research faculty

- **b.** 1 faculty - per year – total two years = \$220.

- **c** Instrument Awards X-Ray, NMR, (X-Ray – (NJIT- 40., Rutgers – 445.)) NMR – NJIT – 130.

- **d** Lecturers not included.

1. Continue to build and develop the faculty. Increase recruiting of women and minorities. Sustain or increase number of female Professors – Current ratio 20. %. Try to increase the number of minority professors by 2010.
2. Continue to improve the quality and increase the size of the graduate student cohort through vigorous and effective recruiting. Add TA's needed for Chem Courses. By 2010, overall graduate enrollment should increase by fifty percent; special attention should be paid to the increase in enrollment to the chemistry, biochemistry and environmental policy programs.
3. Continue to develop and expand interaction with companies that can provide assistance to the department and positions for the graduate students.
4. 4. Aggressively pursue research opportunities and external funding. By 2010, increase the number of grantees to 90 percent, and the average amount of research dollars per each faculty to \$175,000.

Appendicies

Faculty Research Areas and Grant Activity Department of Chemistry and Environmental Science Chemistry Faculty ONLY

Faculty Member	Contact Information	Research Area	Research/Inst. Funding 2004-2005 (\$K)
Joseph W. Bozzelli Acting Chair of Dept. Distinguished Prof.	Bozzelli@njit.edu 973-596-5294	Thermochemistry and kinetics, Atmospheric Chemistry, Thermal and Combustion processes	
Robert Conley Director -Freshman Chemistry	Conley@njit.edu 973-596-3277	Interactive-one on one chemical education, retention in base programs	
Frank Ellis Special Lecturer	frank.b.ellis@njit.edu 973-642-7095	Solar Power and Fuel Cells, Quantum Chemistry, Statistical Mechanics in Chemical Education	
Edgardo Farinas Assistant Professor	Farinas@adm.njit.edu 973-642-7363	Biochemistry – Protein Engineering using Directed Evolution and Rational Approaches.	110. ^a
Sergiu Gorun Associate Professor	Gorun@adm.njit.edu 973-596-6595	Bioinspired Chemistry of Artificial Enzymes, Structural Isotope Effects.	105 ^b 165 ^c , 485 ^{c2}
James Grow Professor	Grow@njit.edu 973-596-3620	Chemical Education – Web Animation of Chemical Action	
Tamara Gund Professor	Gund@njit.edu 973-596-3669	Computational Chemistry, Optimized Structures for Drug Interactions	2,
Zafar Iqbal Research Professor	Iqbal@njit.edu 973-596-8571	Synthesis and Application of Carbon Nanotubes; Proton Exchange Membrane Fuel Cells	540 ^d
Lev Krasnoperov Professor	Krasnoperov@njit.edu 973-596-3592	Experimental Chemical Physics- Reaction Kinetics: Radicals, Gas Phase, Supercritical Fluids, Corona Discharges	175
Sanjay Malhotra Assistant Professor	Malhotra@njit.edu 973-596-5583	Organic Chemistry – Asymmetric Synthesis, Catalysis, Ionic Liquids, Functionalized Nano-Materials	87, 61 ^f
Somenath Mitra Professor	Mitra@njit.edu 973-596-5611	Analytical Chemistry and Nano-science Micro Sensors, Separation Techniques, Nanotechnology and Thin Film Devices	350
William Skawinski Special Lecturer	Skawinski@njit.edu 973-642-7938	Experimental and Computational Chemistry of Biological and Organic Chemicals	
Carol Venanzi Distinguished Professor	Venanzi@njit.edu 973-596-3596	Computer-aided Drug Design: Cocaine Antagonists and DNA Intercalators	85, 5
Pin Gu Chemistry Lab Instructor	Pin.gu@njit.edu 973-596-5623	Chemical Lab Experiments, NO _x Removal and Chemistry, Web Testing.	
Leonard Dauerman	Ldauerman@aol.com	Environmental Law	

- a start up, -b start up, -c Instrument Awards X-Ray, NMR, (X-Ray – (NJIT- 40., Rutgers – 445.)) NMR – NJIT – 130.

- -d PI, H. Grebel co-pi, -f science / education conferences.

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Total Departmental Funded Research 2004/2005

Total funding	Research	1,350. k,
	Instruments	850. k,
	Start up from University	120. k
	Start-up (research)	77. K

Graduate Enrollment F 2001-F 2004 All Degree Programs Department of Chemistry and Environmental Science

Table 1 Graduate Enrollment from F2001 to F2004

Degree Type	Program	F2001	F2002	F2003	F2004
PhD	CHEM	6	7	6	8
	EVSC	24	18	19	17
	Total	30	25	25	25
MS	CHEM	13	8	10	10
	EPS	17	19	26	25
	EVSC	32	33	34	23
	OSIH	16	7	2	1
	Total	78	67	72	59
Total		108	92	97	84

Table 2 Graduate Enrollment from F2001 to F2004 by Gender

Degree Type	Gender	F2001		F2002		F2003		F2004	
		Count	Pct.	Count	Pct.	Count	Pct.	Count	Pct.
PhD	Male	13	43%	11	44%	13	52%	11	44%
	Female	17	57%	14	56%	12	48%	14	56%
	Total	30	100%	25	100%	25	100%	25	100%
MS	Male	52	67%	43	64%	37	51%	27	46%
	Female	26	33%	24	36%	35	49%	32	54%
	Total	78	100%	67	100%	72	100%	59	100%

Table 3: Graduate Enrollment by Race/Ethnicity F 2001- F 2004

Degree Type	Ethnicity	F2001	F2002	F2003	F2004
PhD	Black	1	1	2	1
	Native				
	Asian	1		2	
	Hispanic				
	White	8	6	5	4
	Unknown	2	2	1	2
	Foreign	18	16	15	18
	Total	30	25	25	25
MS	Black	5	5	7	4
	Native				
	Asian	7	5	6	5
	Hispanic	5	5	3	
	White	36	34	36	32
	Unknown	20	16	16	11
	Foreign	5	2	4	7
	Total	78	67	72	59

Table 4: MS Total Enrollment by Gender and Ethnicity in F2002~F2004

Ethnicity	F2002		F2003		F2004		02-04 Average			
	Female	Male	Female	Male	Female	Male	Female	%	Male	%
Black	4	1	5	2	3	1	4	13%	1	4%
Native							0	0%	0	0%
Asian	1	4	2	4	4	1	2	8%	3	8%
Hispanic	1	4	1	2			1	2%	2	6%
White	11	23	17	19	15	17	14	47%	20	55%
Unknown	5	11	6	10	6	5	6	19%	9	24%
Foreign	2		4		4	3	3	11%	1	3%
Total	24	43	35	37	32	27	30	100%	36	100%

Table 5 Graduate Degrees Awarded from 2001-2004

Degree Type	Program	FY 2001	FY 2002	FY 2003	FY 2004
PhD	CHEM	2		1	2
	EVSC	4	3	6	3
	Total	6	3	7	5
MS	CHEM	4	6	2	4
	EPS	3	4	2	8
	EVSC	15	9	10	24
	OSIH	7	8	9	2
	Total	29	27	23	38
Total		35	30	30	43

Table 6: MS & PhD Degrees Awarded from 2001 to 2004 by Gender

Degree Type	Gender	FY 2001		FY 2002		FY 2003		FY 2004	
		Count	Pct.	Count	Pct.	Count	Pct.	Count	Pct.
PhD	Male	4	67%		0%	5	71%	3	60%
	Female	2	33%	3	100%	2	29%	2	40%
	Total	6	100%	3	100%	7	100%	5	100%
MS	Male	18	62%	18	67%	17	74%	22	58%
	Female	11	38%	9	33%	6	26%	16	42%
	Total	29	100%	27	100%	23	100%	38	100%

Table 7: MS & PhD Degree Awarded from 2001 to 2004 by Ethnicity

Degree Type	Ethnicity	FY 2001	FY 2002	FY 2003	FY 2004
PhD	Black				
	Native				
	Asian			2	
	Hispanic				
	White	2	1		1
	Unknown	1		1	
	Foreign	3	2	4	4
	Total	6	3	7	5
MS	Black	1	3	2	4
	Native				
	Asian	3	3	2	4
	Hispanic	3	1	1	2
	White	13	12	14	18
	Unknown	8	3	4	8
	Foreign	1	5		2
	Total	29	27	23	38

Table 8: Time to Degree from 2001 to 2004

Degree Type	Program	FY 2001	FY 2002	FY 2003	FY 2004
PhD	CHEM	6.50		5.00	5.50
	EVSC	7.75	5.50	6.40	6.33
	Total	7.33	5.50	6.17	6.00
MS	CHEM	3.50	3.00	3.50	2.75
	EPS	3.00	3.67	2.00	2.83
	EVSC	4.00	3.14	2.67	2.91
	OSIH	2.00	2.86	3.14	3.00
	Total	3.33	3.09	2.88	2.88

Table 9: Graduate Enrollment by Semester and Attendance Status

Term	FT	PT	Total
F2002	27	65	92
S2003	29	65	94
F2003	30	67	97
S2004	27	58	85
F2004	22	62	84
S2005	32	57	89
Average	28	62	90

Table 10: Average GRE Scores from F2002 to F2004

Degree Type	Program	GRE Verbal	GRE Quant	GRE Ana
PhD	CHEM	590	768	678
	EVSC	529	744	605
	Total	538	745	674
MS	CHEM	355	670	505
	EPS	540	595	555
	EVSC	464	701	693
	Total	484	668	666

Table 11: Average GPA Scores from F2002 to F2004

Degree Type	Program	F2002	F2003	F2004	Average
PhD	CHEM	3.62	3.71	3.07	5.20
	EVSC	3.75	3.74	3.78	5.64
	Total	3.72	3.73	3.53	3.66
MS	CHEM	3.17	3.19	3.19	3.18
	EPS	3.64	3.73	3.65	3.67
	EVSC	3.66	3.67	3.60	3.64
	OSIH	3.88	3.90	3.71	3.83
	Total	3.63	3.64	3.54	3.60

Table 12: Graduation Rates

Degree Type	Program	New Enrollees *	Graduated **	Grad Rate
PhD (96-04)	CHEM	1	0	0%
	EVSC	3	1	33%
	Total	4	1	25%
MS (01-04)	CHEM	2	0	0%
	EPS	10	3	30%
	EVSC	7	5	71%
	Total	19	8	42%

* F1996 for PhD and F2001 for MS

** Graduation rate calculated for 8 years for PhD and 3 years for MS

Table 13: Retention Rate from F2003 to F2004

Degree Type	Program	New Enrollees F03	Retained F04	Grad Rate
PhD	CHEM	6	6	100%
	EVSC	19	12	63%
	Total	25	18	72%
MS	CHEM	10	7	70%
	EPS	26	17	65%
	EVSC	34	14	41%
	Total	70	38	54%

Recruitment Plan for the Department of Chemistry and Environmental Science

The department has an on-going effort to increase the enrollments in the different programs that exist within the department. On an average, the department expects approximately 15% growth in enrollment. Past enrollment and future projections are presented in the table below. Several different steps being taken are as follows:

1. Working with the Office of Admissions, attending college fairs and transfer information sessions at all New Jersey colleges.
2. Direct mailings to local/regional corporations that can benefit from training at our institution. At times this is done in conjunction with the Continuing Professional Education office and with professional associations in which our faculty are active.
3. Graduate students write letters back to their program advisors in the mid-fall describing the program and their experiences within it. Program materials are included.
4. Direct mailing to faculty contacts that have been developed over the past twelve months at local/regional 'feeder' institutions.
5. On-site programs at local/regional institutions (presentations at undergraduate institutions in relevant courses where we have demonstrated success)

6. Re-development of marketing materials and in some cases, development of print based marketing materials that were no existent for programs
7. Working with the registrar's office to correct misinformation on the university website
8. Re-vamping the departmental website in total with launch date set for November 30, 2005 focusing on the core strengths of the department and the unique combination of technology and science that sets the programs apart from others in the state
9. Several transfer articulation agreements were completed and we are working with the Office of Admissions to get these documents finalized.
10. Community-based visibility through service activities of the faculty. Applications from the Chemistry Olympics participants are now beginning to appear as these students are reaching college age.

Specific measures to enhance enrollment in Environmental Science/Environmental Policy as well as in Chemistry are being taken. The MS in Environmental Science and Policy are the largest programs in the department, and compliment each other. Students are being recruited from Consulting firms and the New Jersey Department of Environmental Protection. These have been major sources of graduate students for this program.

For the chemistry programs, which are relatively new, the department is trying to increase its visibility by developing a good seminar series, the faculty giving seminars/presentations at local universities/conferences, initiating a student chapter of the American Chemical Society etc. These measure are also expected to increase retention and recruit graduate students from the graduating class at NJIT. Visits to high schools and the Chemistry Olympics (competition for local high school students) have been effective ways to reach out to potential undergraduate students both in Chemistry and Environmental Science.

STUDENT ENROLLMENT AND PROJECTIONS FALL 2001 - FALL 2010

	CHEM BS	EVSC BS	CHEM MS	CHEM PHD	EVSC MS	EVSC PHD	EPS MS
FALL 2001	9		13	6	32	24	
SPRING 2002		8	12	7		23	
FALL 2002	15	9	9	7	33	18	
SPRING 2003	11	7	15	7	37	17	
FALL 2003	15	9	11	5	34	19	
SPRING 2004	17	7	10	6	28	17	
FALL 2004		9					
SPRING 2005	21	10	11	8	27	20	23
FALL 2005	24	11	9	8	32	19	19
FALL 2006	27	13	10	9	37	21	21
FALL 2007	31	15	11	10	42	23	23
FALL 2008	36	17	12	11	48	26	26
FALL 2009	41	20	14	13	55	30	30
FALL 2010	47	23	16	15	63	35	35