

# Annual Report - 2013-2014

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Wake Forest University Graduate School of Arts and Sciences



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GRADUATE SCHOOL *of*  
ARTS & SCIENCES

**Annual Report**  
**2013-2014**

## Table of Contents

Table 1. Application Summary.....	1
Table 2. Applicant Profile .....	2
Table 3. Applicant Average Test Scores and GPA.....	3
Table 4. Accepted Student Profile .....	4
Table 5. Accepted Student Average Test Scores and GPA .....	5
Table 6. Matriculated Student Profile .....	6
Table 7. Matriculated Student Average Test Scores and GPA .....	7
Table 8. Student Enrollment by Program and Degree .....	8
Table 9. Registered Student Profile .....	9
Table 10. International Enrolled New Student Profile .....	10
Table 11. International Registered Student Profile .....	11
Table 12. Financial Aid Summary .....	12
Table 13. Degrees Awarded by Program and Degree, Class of 2013-2014 .....	13
Table 14. Time to Degree by Program, Class of 2013-2014 .....	14
Table 15. Placement by Program, Undergraduate Institution, Degree, and Plans, 2013-2014 AY .....	15
Table 16. Degree Completion Rates, Masters – Fall 2012, PhD – Fall 2007 .....	17

**Table 1. Application Summary  
Fall 2013**

Degree Program	# Applications	# Accepted	# Enrolled
Biomedical Engineering MS	58	1 (2%)	1 (100%)
Biomedical Engineering PhD	152	47 (31%)	24 (51%)
Biomedical Engineering MD/PhD	12	4 (33%)	1 (25%)
Biomedical Science MS	31	30 (97%)	23 (77%)
Cancer Biology PhD	1	1 (100%)	1 (100%)
Clinical and Population Translational Sciences MS	10	9 (90%)	7 (78%)
Comparative Medicine MS	1	0	0
Integrative Physiology and Pharmacology PhD	30	6 (20%)	4 (67%)
Integrative Physiology and Pharmacology MD/PhD	4	1 (25%)	0
Molecular and Cellular Biosciences PhD	217	28 (13%)	8 (29%)
Molecular and Cellular Biosciences MD/PhD	31	2 (6%)	1 (50%)
Molecular Medicine and Translational Science MS	2	2 (100%)	2 (100%)
Neuroscience PhD	102	9 (9%)	5 (56%)
Neuroscience MD/PhD	23	3 (13%)	2 (67%)
<b>TOTAL</b>	<b>674</b>	<b>143 (21%)</b>	<b>79 (55%)</b>

Table 2. Applicant Profile  
Fall 2013

Degree Program	Male	Female	Not Reported	TOTAL	American Indian/ Alaska Native	Asian	Black or African American	Hispanic / Latino	Native Hawaiian/ Pacific Islander	White	Two or More Races	Non-resident Alien	Not Reported
Biomedical Engineering MS	32	26		58		3	1			18		34	2
Biomedical Engineering PhD	85	64	3	152		7	7	1		71	1	61	4
Biomedical Engineering MD/PhD	7	5		12		1	1			8			2
Biomedical Science MS	13	17	1	31			14	1		13		3	
Cancer Biology PhD	1			1								1	
Clinical and Population Translational Sciences MS	6	4		10		2	2			4			2
Comparative Medicine MS		1		1						1			
Integrative Physiology and Pharmacology PhD	20	10		30			1	2		14	1	12	
Integrative Physiology and Pharmacology MD/PhD	2	2		4		1				2			1
Molecular and Cellular Biosciences PhD	93	124		217		10	9	9		82	3	94	10
Molecular and Cellular Biosciences MD/PhD	24	7		31	1	5				17			8
Molecular Medicine and Translational Science MS	2			2			1			1			
Neuroscience PhD	45	57		102		7	3	1		54	3	26	8
Neuroscience MD/PhD	14	9		23		4				15			4
TOTAL	344	326	4	674	1	40	39	14		300	8	231	41

**Table 3. Applicant Average Test Scores and GPA  
Fall 2013**

Degree Program	GRE Verbal	GRE Quantitative	(V+Q)	GRE Analytical	GPA	TOEFL	MCAT
Biomedical Engineering MS	152	160	312	3.6	3.3	98	
Biomedical Engineering PhD	155	161	316	3.9	3.5	99	
Biomedical Engineering MD/PhD					3.7		35
Biomedical Science MS	155	152	307	4.1	3.3	107	28
Cancer Biology PhD	151	143	294	4.0	3.0		
Clinical and Population Translational Sciences MS					3.6		29
Comparative Medicine MS	155	151	306	4.0	3.9		
Integrative Physiology and Pharmacology PhD	154	156	310	3.6	3.3	97	27
Integrative Physiology and Pharmacology MD/PhD					3.8		33
Molecular and Cellular Biosciences PhD	154	157	311	3.7	3.5	98	28
Molecular and Cellular Biosciences MD/PhD	161	154	315	4.0	3.7		34
Molecular Medicine and Translational Science MS					3.9		36
Neuroscience PhD	156	156	312	3.9	3.5	96	32
Neuroscience MD/PhD	160	156	316	4.0	3.4		34
<b>AVERAGE</b>	<b>154</b>	<b>158</b>	<b>312</b>	<b>3.8</b>	<b>3.5</b>	<b>98</b>	<b>32</b>

Table 4. Accepted Student Profile  
Fall 2013

Degree Program	Male	Female	Not Reported	TOTAL	American Indian/ Alaska Native	Asian	Black or African American	Hispanic / Latino	Native Hawaiian/ Pacific Islander	White	Two or More Races	Non-resident Alien	Not Reported
Biomedical Engineering MS	1			1						1			
Biomedical Engineering PhD	20	27		47		2	4	1		31	1	7	1
Biomedical Engineering MD/PhD	2	2		4						4			
Biomedical Science MS	13	17		30			14	1		11		3	1
Cancer Biology PhD	1			1								1	
Clinical and Population Translational Sciences MS	5	4		9		2	2			3			2
Comparative Medicine MS													
Integrative Physiology and Pharmacology PhD	5	1		6						6			
Integrative Physiology and Pharmacology MD/PhD	1			1									1
Molecular and Cellular Biosciences PhD	11	17		28		4	1	2		12		5	4
Molecular and Cellular Biosciences MD/PhD	2			2						2			
Molecular Medicine and Translational Science MS	2			2			1			1			
Neuroscience PhD	2	7		9				1		5	1		2
Neuroscience MD/PhD	2	1		3		2				1			
<b>TOTAL</b>	<b>67</b>	<b>76</b>		<b>143</b>		<b>10</b>	<b>22</b>	<b>5</b>		<b>77</b>	<b>2</b>	<b>16</b>	<b>11</b>

**Table 5. Accepted Student Average Test Scores and GPA  
Fall 2013**

Degree Program	GRE Verbal	GRE Quantitative	(V+Q)	GRE Analytical	GPA	TOEFL	MCAT
Biomedical Engineering MS	153	164	317	3.0	3.9		
Biomedical Engineering PhD	159	161	320	4.3	3.8	104	
Biomedical Engineering MD/PhD					3.7		31
Biomedical Science MS	154	151	305	4.1	3.3	107	23
Cancer Biology PhD	151	143	294	4.0	3		
Clinical and Population Translational Sciences MS					3.7		29
Comparative Medicine MS							
Integrative Physiology and Pharmacology PhD	157	159	316	3.8	3.3		27
Integrative Physiology and Pharmacology MD/PhD					3.7		30
Molecular and Cellular Biosciences PhD	157	157	314	4.1	3.6	111	30
Molecular and Cellular Biosciences MD/PhD					3.7		38
Molecular Medicine and Translational Science MS					3.9		36
Neuroscience PhD	162	155	317	3.9	3.5		
Neuroscience MD/PhD					3.4		35
<b>AVERAGE</b>	<b>158</b>	<b>159</b>	<b>317</b>	<b>4.1</b>	<b>3.6</b>	<b>106</b>	<b>32</b>



**Table 6. Matriculated Student Profile  
Fall 2013**

Degree Program	Male	Female	Not Reported	TOTAL	American Indian/ Alaska Native	Asian	Black or African American	Hispanic / Latino	Native Hawaiian/ Pacific Islander	White	Two or More Races	Non-resident Alien	Not Reported
Biomedical Engineering MS	1			1						1			
Biomedical Engineering PhD	12	12		24		2	1	1		16		4	
Biomedical Engineering MD/PhD	1			1						1			
Biomedical Science MS	11	12		23			11			9		2	1
Cancer Biology PhD	1			1								1	
Clinical and Population Translational Sciences MS	4	3		7		1	1			3			2
Comparative Medicine MS													
Integrative Physiology and Pharmacology PhD	4			4						4			
Integrative Physiology and Pharmacology MD/PhD													
Molecular and Cellular Biosciences PhD	6	2		8		1				4		2	1
Molecular and Cellular Biosciences MD/PhD	1			1						1			
Molecular Medicine and Translational Science MS	2			2			1			1			
Neuroscience PhD		5		5				1		1	1		2
Neuroscience MD/PhD	2			2		1				1			
<b>TOTAL</b>	<b>45</b>	<b>34</b>		<b>79</b>		<b>5</b>	<b>14</b>	<b>2</b>		<b>42</b>	<b>1</b>	<b>9</b>	<b>6</b>

**Table 7. Matriculated Student Average Test Scores and GPA  
Fall 2013**

Degree Program	GRE Verbal	GRE Quantitative	(V+Q)	GRE Analytical	GPA	TOEFL	MCAT
Biomedical Engineering MS	153	164	317	3.0	3.9		
Biomedical Engineering PhD	158	161	319	4.3	3.9	105	
Biomedical Engineering MD/PhD					3.6		35
Biomedical Science MS	153	151	304	3.9	3.2	107	23
Cancer Biology PhD	151	143	294	4.0	3.0		
Clinical and Population Translational Sciences MS					3.7		31
Comparative Medicine MS							
Integrative Physiology and Pharmacology PhD	157	157	314	3.6	3.2		28
Integrative Physiology and Pharmacology MD/PhD							
Molecular and Cellular Biosciences PhD	158	158	316	4.1	3.6	111	28
Molecular and Cellular Biosciences MD/PhD					3.5		35
Molecular Medicine and Translational Science MS					3.9		36
Neuroscience PhD	162	154	316	4.4	3.5		
Neuroscience MD/PhD					3.4		35
<b>AVERAGE</b>	<b>158</b>	<b>158</b>	<b>316</b>	<b>4.1</b>	<b>3.5</b>	<b>107</b>	<b>32</b>

**Table 8. Student Enrollment by Program and Degree**  
**Fall 2013**

Degree Program	PhD	MD/PhD	MS	Unclassified	TOTAL
Biochemistry and Molecular Biology	12	1			13
Biomedical Engineering - WFU	40		2		42
Biomedical Engineering - VT	61		5		66
Biomedical Science			11		11
Cancer Biology	15				15
Clinical and Population Translational Sciences			23		23
Comparative Medicine					
Integrative Physiology and Pharmacology	22				22
Microbiology and Immunology	14	1			15
Molecular and Cellular Biosciences	5				5
Molecular Genetics and Genomics	16				16
Molecular Medicine and Translational Science	25	1	2		28
Molecular Pathology	7				7
Neurobiology and Anatomy	2				2
Neuroscience	38	4			42
Unclassified				15	15
<b>TOTAL</b>	<b>257</b>	<b>7</b>	<b>43</b>	<b>15</b>	<b>322</b>

**Table 9. Registered Student Profile  
Fall 2013**

Degree Program	Amer Indian/ Alaska Native		Asian		Black or African American		Hispanic/ Latino		Native Hawaiian/ Pacific Islander		White		Two or More Races		Non-resident Alien		Unknown		TOTAL
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Biochemistry and Molecular Biology											4	8				1			13
Biomedical Engineering			3	3	3	3					29	44			14	8	1		108
Biomedical Science						1					4	4			1	1			11
Cancer Biology			1	1							6	7							15
Clinical and Population Translational Sciences			1		2						7	11					1	1	23
Comparative Medicine																			
Integrative Physiology and Pharmacology											10	5			4	3			22
Microbiology and Immunology						2	1				5	6			1				15
Molecular and Cellular Biosciences				1							2	1					1		5
Molecular Genetics and Genomics	1										6	6			3				16
Molecular Medicine and Translational Science			1	1	2	3					11	6			2	2			28
Molecular Pathology						2					2	3							7
Neurobiology and Anatomy											1					1			2
Neuroscience	1			1							15	18		1	3	2		1	42
MD/PhD§				1							4	1				1			7
<b>TOTAL</b>	<b>2</b>	<b>0</b>	<b>6</b>	<b>7</b>	<b>7</b>	<b>11</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>102</b>	<b>119</b>	<b>0</b>	<b>1</b>	<b>28</b>	<b>18</b>	<b>3</b>	<b>2</b>	<b>307</b>

§Not included in totals - already counted in programs of study

**Table 10. International Enrolled New Student Profile  
Fall 2013**

Degree Program	Barbados	Cameroon	Canada	China	Colombia	Germany	Guyana	India	Indonesia	Iran	Ireland	Jordan	Nepal	Russian Federation	Viet Nam	Total
Biomedical Engineering			1					1		2						
Biomedical Science								1					1			
Clinical and Population Translational Science																
Comparative Medicine																
Integrative Physiology and Pharmacology										1						
Molecular and Cellular Biosciences																
Molecular Genetics and Genomics								1								
Molecular Medicine and Translational Science											1					
Neuroscience															1	
<b>TOTAL</b>			<b>1</b>					<b>3</b>		<b>3</b>	<b>1</b>		<b>1</b>		<b>1</b>	<b>10</b>

**Table 11. International Registered Student Profile  
Fall 2013**

Degree Program	Barbados	Canada	China	Colombia	Germany	India	Indonesia	Iran	Ireland	Israel	Jordan	Nepal	Russian Federation	Viet Nam	Total
Biochemistry and Molecular Biology			1												1
Biomedical Engineering		1	4			2		2		1					10
Biomedical Science						1						1			2
Cancer Biology															
Clinical and Population Translational Science															
Comparative Medicine															
Integrative Physiology and Pharmacology	1		2			2		1			1				7
Microbiology and Immunology				1											1
Molecular and Cellular Biosciences															
Molecular Genetics and Genomics			1			1	1								3
Molecular Medicine and Translational Science					1	1		1	1						4
Molecular Pathology															
Neurobiology and Anatomy			1												1
Neuroscience					1	1				1			1	1	5
<b>TOTAL</b>	<b>1</b>	<b>1</b>	<b>9</b>	<b>1</b>	<b>2</b>	<b>8</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>34</b>

Table 12. Financial Aid Summary  
Fall 2013

Degree Program	Institutional Support			External Support			Self	Other	TOTAL
	Graduate Fellowship	Non-grad Institutional	Teaching Assistantship	Individual Award	Research Grant	Training Grant			
Biochemistry and Molecular Biology	1		1	1	9	1			13
Biomedical Engineering - WFU	8			4	28	2			42
Biomedical Engineering - VT§									0
Biomedical Science***							11°		11
Cancer Biology		2			7	6			15
Clinical and Population Translational Sciences***		2*				8**	13		23
Comparative Medicine									0
Integrative Physiology and Pharmacology	4	1		1	11	2	1	2	22
Microbiology and Immunology	1			1	7	6			15
Molecular and Cellular Biosciences	5								5
Molecular Genetics and Genomics	1			1	12	1	1		16
Molecular Medicine and Translational Science	2				22			4	28
Molecular Pathology				1	3	3			7
Neurobiology and Anatomy					2				2
Neuroscience	8		1	10	13	7	2	1	42
Unclassified***		2				13			15
<b>TOTAL</b>	<b>30</b>	<b>7</b>	<b>2</b>	<b>19</b>	<b>114</b>	<b>49</b>	<b>28</b>	<b>7</b>	<b>256</b>

§Virginia Tech support information not available

\*Tuition was funded by graduate and non-graduate institutional funds

\*\*Tuition was funded by graduate and training grant funds

\*\*\*Tuition Only

°Tuition was funded by graduate funds and student self pay

TABLE 13. DEGREES AWARDED BY PROGRAM AND DEGREE

CLASS OF 2013-2014

	PhD Programs		Masters Programs	TOTAL
	PhD	MD/PhD		
Biochemistry and Molecular Biology	4	1		5
Biomedical Engineering - WFU	4		4	8
Biomedical Engineering - VT	11		7	18
Biomedical Science			11	11
Cancer Biology	4			4
Clinical and Population Translational Sciences			10	10
Comparative Medicine				0
Integrative Physiology and Pharmacology	6			6
Microbiology and Immunology	2			2
Molecular Genetics and Genomics	2			2
Molecular Medicine and Translational Science	5	1		6
Molecular Pathology	4			4
Neurobiology and Anatomy				0
Neuroscience	8			8
<b>TOTAL</b>	<b>50</b>	<b>2</b>	<b>32</b>	<b>84</b>



**TABLE 14. TIME TO DEGREE BY PROGRAM, CLASS OF 2013-2014**

	PhD	MS
Biochemistry and Molecular Biology	5.40	
Biomedical Engineering	5.58	1.75
Biomedical Science		2.21
Cancer Biology	5.08	
Clinical and Population Translational Sciences		2.66
Comparative Medicine		
Integrative Physiology and Pharmacology	4.44	
Microbiology and Immunology	6.00	
Molecular Genetics and Genomics	5.00	
Molecular Medicine and Translational Science	4.94	
Molecular Pathology	4.67	
Neurobiology and Anatomy		
Neuroscience	5.41	
<b>AVERAGE</b>	<b>5.17</b>	<b>2.21</b>

\*Average of years from matriculation to awarding of the degree

**TABLE 15. PLACEMENT BY PROGRAM, UNDERGRADUATE INSTITUTION, DEGREE, AND**

**PLANS, 2012-2014, AX**

<b>Program</b>	<b>Undergraduate Institution</b>	<b>Degree</b>	<b>Plans</b>
<b>BICM</b>	Agnes Scott College	PhD	Continuing with MD, WFSM
	Asbury University		Research, US Government
	Meredith College		Scientist, Industrial Sector
	Virginia Military Institute		Research Associate, WFU
	Virginia Polytechnic & State University		Post Doc, UNC-Chapel Hill
<b>BMES</b>	North Carolina State University	PhD	Senior Research Associate, WFU
	Rutgers University		Post Doc, Unknown
	Tennessee Tech University		Post Doc, University of Pennsylvania
	Hebei University of Technology		Post Doc, WFUSM
	Hebei University of Technology	MS	Research Assistant, Indiana University, Bloomington
	Temple University		Continuing with PhD, Biomedical Engineering, WFSM
	UNC-Chapel Hill		Continuing with PhD, Biomedical Engineering, WFSM
	Vanderbilt University		R & D, Biomedical Engineering
	Auburn University	MS	Project Manager, Medical Software Industry
	Elon University		Unknown
	Fisk University		Vocal Performer, Chronicles of a Rising Star
	Lock Haven University		Research Scientist, WFU
	Meredith College		Senior Research Associate, Novozymes North America, Inc.
	Miami University		Unknown
	North Carolina State University		Clinical Research, Location Unknown
	University of Delaware		Research Technician, UNC-Chapel Hill
	University of Toledo		Unknown
	Wake Forest University		Research, University of Texas, Southwestern
	Winston-Salem State University		Instructor, Location Unknown
<b>CABI</b>	Campbell University	PhD	Assistant Professor of Biology, North Carolina Wesleyan College
	State University of New York, Fredonia		Post Doc, University of Michigan
	University of California, San Diego		Unknown
	UNC – Chapel Hill		Business Development, Pharmaceutical
<b>CPTS</b>	Colby College	MS	Physician, WFBHS
	Furman University		Physician, WFBHS
	Princeton University		Physician, WFBHS
			Physician, WFBHS
	Purdue University		Physician, WFBHS
	University of Georgia		Cardiology Fellow, WFBHS
	University of Ibadan		Physician, Harbin Clinic, Rome, Georgia
	University of Karachi		Physician, University of Mississippi Medical Center
	University of Mississippi		Physician, University of Mississippi Medical Center
	University of Yaounde		Research Associate, WFBHS
<b>IPP</b>	Bucknell University	PhD	Post Doc, University of Massachusetts Medical School
	Duquesne University		Business Analyst, Biotechnology Sector

**TABLE 15. PLACEMENT BY PROGRAM, UNDERGRADUATE INSTITUTION, DEGREE, AND**

**PLACEMENTS 2012-2014, BY**

<b>IPP</b>	McGill University University at Buffalo University of Connecticut Wake Forest University	PhD	Clinical & Research Faculty, McGill University Senior Associate, Gerson Lehrman Group Post Doc, University of Vermont Unknown
<b>MICR</b>	Clemson University Converse College	PhD	Post Doc, University of Buffalo, SUNY Post Doc, Location Unknown
<b>MOGN</b>	Appalachian State University Clemson University	PhD	Post Doc, WFBHS Research, Intrexon,
<b>MMTS</b>	Campbell University  Case Western Reserve University Chongqing University Guilford College Ruprecht-Karls-University Wake Forest University	PhD	Post Doc, Boston Children's Hospital, Harvard Medical School Continuing with MD, WFBHS Post Doc, Location Unknown Post Doc, Duke University Physician, Location Unknown Resident, WFBHS
<b>MCPA</b>	Bogor Agricultural University Peking University Health Science Center North Carolina State University University at Buffalo	PhD	Research Veterinarian, Indonesia Post Doc, WFBHS Research Faculty, University of Iowa Post Doc, WFBHS
<b>NEUR</b>	Brigham Young University Furman University Grand Valley State University Ruprecht-Karls-Universitat Heidelberg University of Massachusetts, Amherst University of Tennessee, Chattanooga Virginia Polytechnic Institute and State University Wilkes University	PhD	Post Doc, Oregon Health & Science University Scientific Consultant, Brain Vision, LLC Post Doc, Location Unknown Resident, WFBHS Post Doc, Mt. Sinai School of Medicine Post Doc, Medical University of South Carolina Post Doc, WFBHS  Unknown

TABLE 16. DEGREE COMPLETION RATES

Masters - Fall 2012

PhD - Fall 2007

	Matriculated		Graduated		% Completion	
	PhD	MS	PhD	MS	PhD	MS
Biochemistry and Molecular Biology	4		4		100%	
Biomedical Engineering	3	1	3	1	100%	100%
Biomedical Science						
Cancer Biology	4		1	1	25%	25%
Clinical and Population Translational Sciences		3				
Comparative Medicine		1		0		0%
Integrative Physiology and Pharmacology	4		2	1	50%	25%
Microbiology and Immunology	4		3		75%	
Molecular Genetics and Genomics	4		4		100%	
Molecular Medicine and Translational Science	6		6		100%	
Molecular Pathology	4		4		100%	
Neurobiology and Anatomy	3		0		0%	
Neuroscience	7		6		86%	
<b>TOTAL</b>	<b>43</b>	<b>5</b>	<b>33</b>	<b>3</b>	<b>77%</b>	<b>60%</b>