



PRODIG PROPOSAL

2019-2020

SUNY COLLEGE OF OPTOMETRY

Abstract

This proposal, created by SUNY Optometry's PRODiG Committee (Appendix I), explores the state of underrepresented minorities (URMs) and Women in STEM (WSTEM) in faculty positions at SUNY Optometry. The proposal includes a detailed analysis of the academic optometry and Vision Science workforce both at the National level and at the College; hiring, promotion, and retention practices at SUNY Optometry; and barriers to careers in academic optometry. This proposal also outlines a detailed strategy to increase the number of URM in research and clinical faculty positions, and increase the number of women in higher faculty ranks. Based on the findings of this proposal, SUNY Optometry is requesting funding for a tenure-track position that is currently available, a position that will likely open next year, graduate stipends for qualified candidates, and funding for key pipeline-building initiatives that can benefit the College and other SUNY campuses.

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Part A. Context

I. Context and Background

The SUNY College of Optometry (SUNY Optometry) offers a professional degree in optometry and graduate degrees in vision science (MS and PhD). Academic optometry faculty play a critical role in the eye care system. Optometrists in academia are responsible for educating future generations of eye care providers having a direct impact on students' medical and technical knowledge as well as values and perspectives.ⁱ Optometrists in academia also serve as role models in the recruitment and retention of students, especially in underserved and underrepresented communities. Vision Science faculty at the college conduct research in a broad range of areas consistent with the breadth and diversity of the study of the visual system. Faculty at the college have established successful programs in basic vision research, including visual neuroscience, perception, immunology and ocular physiology as well as in clinical research, including myopia, glaucoma, traumatic brain injury, contact lens technology and dry eye among others. Vision science faculty play a critical role in the training and mentoring of undergraduate and graduate students pursuing OD/MS and PhD degrees and postdoctoral fellows and are instrumental in fostering the development of future scientists and educators.

Studies have shown persistent disparities of care across racial and ethnic lines. The medical community largely agrees that alleviating such disparities will require the diversification of the healthcare provider workforce. According to ASCO (Association of Schools and College of Optometry):ⁱⁱ “(1) Greater diversity among health professionals is associated with improved access to care for our diverse society, greater patient choice and satisfaction, better patient-provider communication, and better educational experiences for all students, which will prepare them for the diverse communities they will serve in practice, (2) Diversity is good for optometric education and the profession, and (3) It is the right thing to do.”

Further support for increasing the diversity of the academic workforce to address disparities in care is grounded on the fact that: 1. Underrepresented Minority (URM) patients prefer to be cared by URM providers, 2. URM providers are more likely to work and serve URM communities when compared to non-URM providers, and 3. URMs are more likely to choose careers in which other URMs are represented.

Despite the persistent issues to increase diversity in the profession and particularly in academic optometry that will be shared in this report, SUNY Optometry is uniquely positioned to address the issue of diversity and inclusion for the following reasons:

- Building a diverse, inclusive, and equitable community of faculty, students, residents, and staff is at the heart of the SUNY College of Optometry's mission to “advance eye care through education, research and patient care.” As part of the College's Strategic Plan, *Care, Lead, Advance*, SUNY Optometry clearly states its shared value of “diversity,” with the explicit goal of “cultivating an institutional culture that encourages a sense of community, inclusion, institutional pride, collective purpose and shared responsibility.” Strategic Goal 8 further specifies, “Enroll a highly qualified and diverse student body,” and is targeted specifically at shaping a student body that is reflective of the communities we serve.

- SUNY Optometry developed a Diversity and Inclusion Master Plan in 2017, which asserts the missions of instilling and celebrating diversity, inclusion, and equity in every aspect of the College's operations. Specific recommendations to increase diversity of students and faculty were outlined and are currently being implemented.

COLLEGE BACKGROUND

The SUNY College of Optometry (SUNY Optometry) offers professional and graduate degrees in the areas of optometry and vision science. The Doctor of Optometry (OD) is a four-year professional degree program that can be entered after completing undergraduate school. ODs are primary providers of eye and vision care, prescribe glasses and contact lenses and treat patients with a variety of eye and vision conditions, including ocular diseases. An estimated 70% of eye care is provided by optometrists.ⁱⁱⁱ A bachelor's degree in the sciences is recommended for admission; accelerated acceptance is available through selected undergraduate institutions.

The MS and PhD programs offer research degrees emphasizing the structure and processes of vision.

All classrooms, research facilities and the University Eye Center, which is one of the largest optometric outpatient facilities in the nation and supports over 70,000+ patient encounters annually, are located in midtown Manhattan.

COLLEGE BY THE NUMBERS

In AY 2018-19 the College employed 70 full-time and 39 part-time paid faculty members for a total of approximately 81.4 FTE (Full-Time Equivalent).

- Students – 402
 - Professional OD program (387)
 - PhD in Vision Science (15)
 - OD/MS (20 – included in professional OD program)
- Residents – 41
 - SUNY salaried/based: 17
 - Affiliate: 24
- Employees - 356
- Faculty – 107
 - 70 full-time; 37 part-time
- Programs:
 - Professional OD program (Optometry)
 - Residency
 - OD/MS in Vision Science
 - OD/PhD in Vision Science
 - MS in Vision Science
 - PhD in Vision Science
 - OD/Graduate Certificate in Optometric Business Management (with Empire State College)

II. Profile of the Profession of Optometry & Vision Science

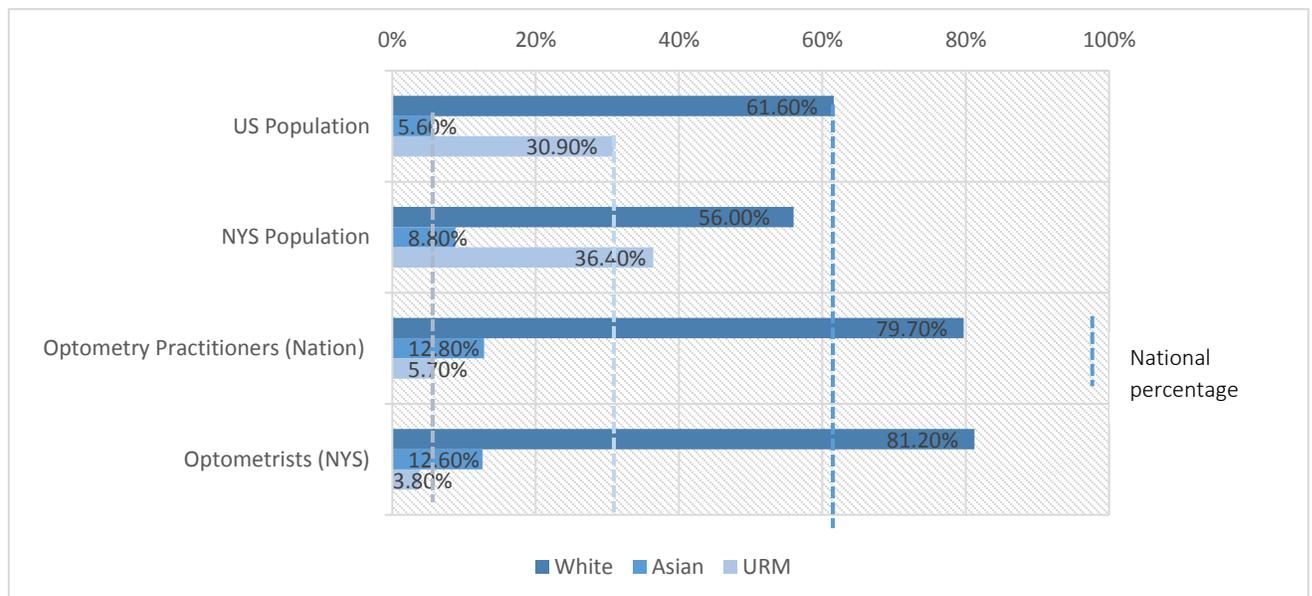
Optometry:

Gender. Data from the National Center for Health Workforce Analysis (U.S. Department of Health and Human Services^{iv}) show that females comprised 47.2% of the U.S. workforce and females represent a higher proportion of workers in 27 of the 37 (73%) health occupations tracked by the workforce analysis. According to the American Optometric Association, in 2018, females comprised 45.2% (20,349) of the total number of optometrists (45,033)¹, which is higher than other major health professions, including physicians (33.5%) and dentists (24.1%).

Female optometrists in academic positions comprise 57% of the faculty workforce.^v

Race and Ethnicity. In 2018, under-represented minorities (URMs) represented 35% of the U.S. population. In regards to race and ethnicity, the health professions are predominately White (79.9%). Whites also comprise the majority of optometrists (79.7%), followed by Asians (12.8%), Hispanics (3.8%), Blacks (1.9%), Two or more races (0.1%), and Others (0.1%).

During 2010, SUNY Optometry and its Center for Vision Care Policy, led by Dr. Mort Soroka, conducted a comprehensive Workforce Study of Eye Care providers in New York State (NYS)^{vi}. This analysis examined the current supply of eye care providers -by age, gender, and ethnicity- the demand for eye care services, and the need for both optometrists and ophthalmologists in NYS over the next two decades. The study's findings indicate that in 2010, 81.2% of NYS practicing ODs were White, and 12.8% are Asian, while only 1.7% and 1.9%, respectively, are African American/Black and Hispanic/Latino practitioners.



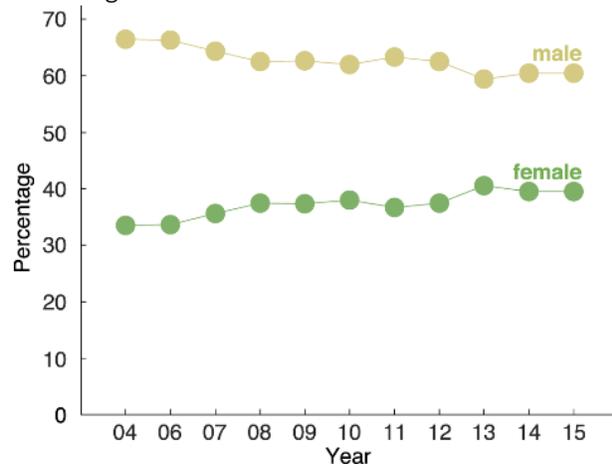
¹ The American Optometric Association (AOA) 2018 data indicates a total number of 45,033 licensed optometrist in the USA. (Source – Chair of the AOA Research & Information Resource Group)

Figure 1. Total Number of Practicing Optometrists Nationwide and in NYS by Race

Vision Science Research

Gender. Gender imbalance is pronounced in the vision science research community nationwide, with the majority of vision scientists at all career levels being male, and the imbalance being most pronounced in senior positions^{vii,2} The imbalance has slightly diminished in the past few years, as seen in the graph below:

Percentage of Male and Female Vision Scientists Attendees at Vision Science Society Annual Meeting

Figure 2. Distribution of attendees by gender across years^{viii}

Race and Ethnicity. Data on racial and ethnic composition of vision scientists is hard to find. The racial breakdown of vision scientists can be roughly estimated by the type of doctoral degree typically pursued by professionals in the field.

As seen in the table below, data from the National Science Foundation on Doctorate recipients from U.S. Universities in 2017 in fields sought-after³ by the College's Vision Science program show major race/ethnic disparities.^{ix} Doctoral recipients in selected fields were predominantly White (68%), Asian (13%), and Hispanics (8%). Blacks represented 4% of doctorate recipients in these selected areas.

² Longitudinal study based on number of attendees at the Annual Meeting of the Vision Sciences Society

³ Molecular biology, Genetics, Cellular biology, Biochemistry, Neuroscience, Physiology, Biomedical Sciences, Optics, Cognitive Neuroscience, Cognitive psychology, Biomedical sciences, Immunology, Pharmacology, Micro Biology, Computer Science, and Epidemiology.

Table 1. Doctorate Recipients from U.S. Universities: 2017

Subfield of study	U.S. citizens and permanent residents															
	Total US Citizen and Race Declared	Hispanic or Latino	Not Hispanic or Latino										Other race or race not reported	Ethnicity not reported		
			%	American Indian or Alaska Native	%	Asian	%	Black or African American	%	White	%	More than one race			%	
All fields	35,791	2,540	7%	109	0.3%	3,502	10%	2,409	7%	24,880	70%	1,016	3%	471	1%	864
Selected Fields	4,104	292	7%	7	0.2%	563	14%	187	5%	2,800	68%	137	3%	50	1%	39

III. Academic Optometry and Vision Science (Faculty)

Academic Optometry

Finding highly-qualified faculty for Academic Optometry positions is very challenging. There are 23 schools in the nation with roughly 778 positions nation-wide^x. Academic optometrists comprising around 1.7% of the optometric workforce (778/45,033). As depicted in the graph below, a career in academic optometry typically requires both optometric credentials and further education in either the form of a residency program or graduate credentials (MS or PhD). A one-year residency training is increasingly becoming a universal requirement for those looking to pursue a career in academic optometry.

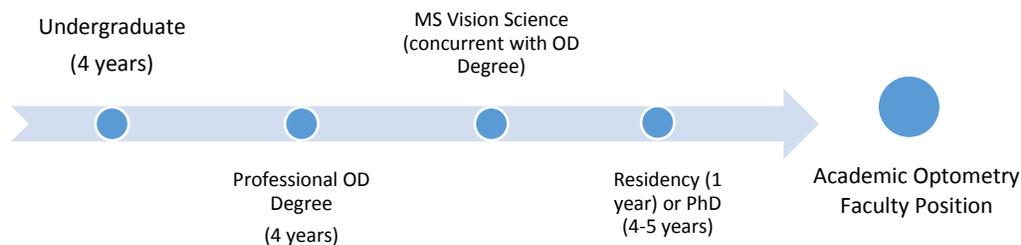


Figure 2. Academic Optometry Pathway

The demand for faculty in optometry is increasing. Increase in demand is largely due to the fact that the profession itself is growing, there are new schools opening (two new schools opened in the past three years in Illinois and Kentucky), and the expansion of scope of practice requires a greater range of expertise.^{xi} Moreover, the profession needs highly trained OD/Scientists in faculty positions as its authenticity and legitimacy is dependent on the backing of solid scientific knowledge for every treatment, procedure, and instrument it uses, and the creation of new knowledge.

The interest to complete residency programs has increased in the past years, from 23% in 2010 to 36% in 2019, which emphasizes the growing wish to gain a deeper level of understanding, expertise and specialization by graduating ODs. In comparison, the number of OD students or optometrists pursuing graduate degrees is very small^{xii}. ASCO has expressed concerns about the continued recruitment of optometry students and optometrists into graduate programs. Amongst the challenges identified by ASCO:

- Increased focus on medical side of optometry may have increased demand for residency programs but decreased the value of graduate education
- Recent proliferation of programs with little focus on research is shifting the balance of faculty

To address the dearth of ODs with graduate credentials and to stimulate interest in academic optometry, the ASCO Academic Affairs Committee has:

- Implemented a marketing plan for graduate education in optometry
- Collaborated with the American Academy of Optometry to create a workshop entitled *Charting Your Career in Academic Optometry and Research: A Session for Optometry and Graduate Students*

Vision Scientist Track

As depicted in the graph below, an academic career in Vision Science typically requires graduate credentials (MS and PhD) in specialized areas, including neuroscience, physiology, psychology, optics, genetics, molecular and cell biology, and others.

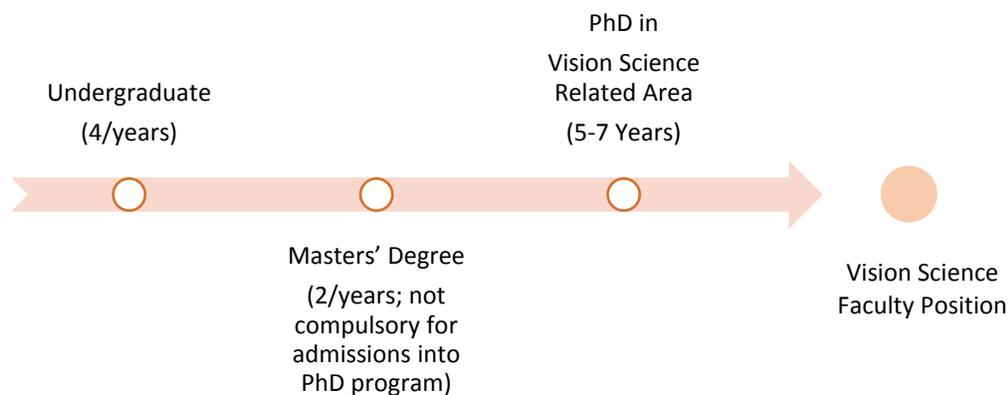


Figure 3. Vision Science Faculty Pathway

IV. Profile of Faculty in Academic Optometry and Vision Science

SUNY Optometry faculty data presented in this section are divided into two groups: faculty teaching in the OD program (faculty in this group may also have teaching responsibilities in the PhD program) and faculty teaching exclusively in the PhD program.

SUNY Optometry has also a tenure-track (Continuing Appointment) and a qualified clinical faculty track (may teach didactically as well as in the clinical care setting). Some Tenure-track faculty may teach both in the professional degree (OD) and graduate (MS/PHD) programs. Faculty teaching exclusively in the graduate program are all tenure-track.

Overall Faculty Profile

As discussed earlier, 57% of optometrists in academic positions in optometry programs nationwide are females. National data comparing race and ethnicity of Optometry faculty (including both faculty teaching in the OD program and graduate program in Vision Science) from the 2015-16 and 2018-19 academic years show that the percentage of URM faculty members has increased by .8%, and that the number of white faculty members has decreased by 3.5%. According to Figure 4, 66% of the faculty nationwide are White, 18.6% Asian, 9.5% URM, and 5.9% Others.

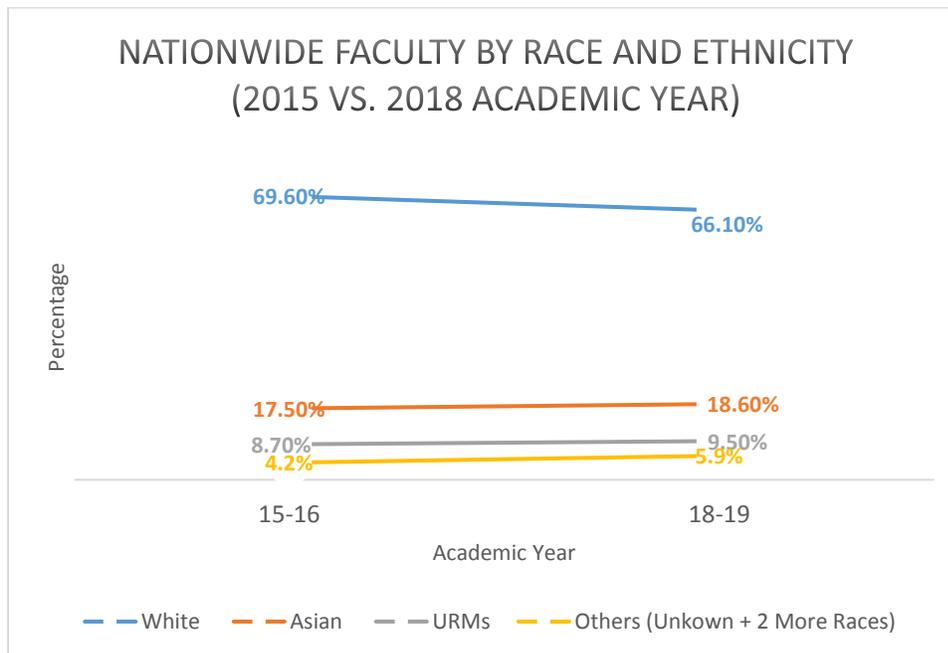


Figure 4. Nationwide Optometry Faculty by Race/Ethnicity (2015-2018)

Faculty by Rank

National Faculty Rank by Gender:

In regards to faculty ranking, national data shows that males have significantly higher ranks when compared to females. Males represent 64% of faculty with Professor ranking (the highest rank), and 36% of Instructor rank (the lowest rank).

A plausible explanation to this disparity is that, historically, optometry was a male dominated profession. The current cohort of Male Full Professors have been in the profession for a longer period, allowing them the time and opportunity to achieve this rank. If this hypothesis is correct, the current panorama should be changing with an increasing number of women graduating from optometry schools around the country (67.9% AY 2018). Differences between male and female salaries may be another explanation^{xiii,xiv} Poor family leave protection policies may be another reason.^{xv} However, this disparity warrants further investigation to determine other possible causes and potential solutions

National Faculty Rank by Race/Ethnicity:

White faculty tend to have higher ranking positions when compared to other races (Table 2). Full Professors were 81% White, compared to 9.1% Asian, 2.3% Hispanic, 2.3% Black, and 4.6% two or more races, or Unknown.

The rank of Assistant Professor presented the most diversity, with 55% White, 24.6% Asian, 3.8% Black, 7.2% Hispanic, 0.9% American Indian/Alaska Native/Hawaiian, and 8% Two or More races or Unknown.

Table 2. Gender and Ethnicity of Didactic and Clinical Faculty at Optometry Programs Nationwide

Academic Rank		White	Black or African American	Hispanic or Latino	Asian	Native Hawaiian or Other Pacific Islander	American Indian or Alaska Native	Two or More Races	Unknown	Total 1.0 FTE Count	% of 1.0 FTE Faculty by Rank (% of total)	% of Full-time Faculty by gender in Category
Professor	Male	95	1	3	7	0	1	1	4	112	14.40%	64%
	Female	48	3	1	9	0	0	1	1	63	8.10%	36%
	Total	143 (81.7%)	4 (2.3%)	4 (2.3%)	16 (9.1%)	0	1 (0.6%)	2 (1.1%)	5 (2.9%)	175	22.49%	
Associate Professor	Male	71	2	4	16	0	0	1	3	97	12.47%	42%
	Female	98	8	3	19	0	0	0	4	132	16.97%	58%
	Total	169 (73.8%)	10 (4.4%)	7 (3.1%)	35 (15.3%)	0	0	1 (0.4%)	7 (3.1%)	229	29.43%	
Assistant Professor	Male	63	4	8	24	1	1	1	11	113	14.52%	33%
	Female	129	9	17	61	1	0	5	11	233	29.95%	67%
	Total	192 (55.5%)	13 (3.8%)	25 (7.2%)	85 (24.6%)	2 (0.6%)	1 (0.3%)	6 (1.7%)	22 (6.4%)	346	44.47%	
Instructor	Male	6	1	3	0	0	0	0	0	10	1.29%	36%
	Female	5	2	1	6	0	0	0	4	18	2.31%	64%
	Total	11 (39.3%)	3 (10.7%)	4 (14.3%)	6 (21.4%)	0	0	0	4 (14.3%)	28	3.60%	
Total	Male	235	8	18	47	1	2	3	18	332	42.67%	43%
	Female	280	22	22	95	1	0	6	20	446	57.33%	57%
	Total	515 (66.2%)	30 (3.9%)	40 (5.1%)	142 (18.3%)	2 (0.3%)	2 (0.3%)	9 (1.2%)	38 (4.9%)	778	100.00%	

The numbers described in Table 1 show that the profession is diversifying. A more diverse junior faculty pool is entering academia, which will likely represent that with proper mentoring and career development opportunities, higher rankings in the near future will become more diversified.

Faculty at SUNY Optometry

In 2019, SUNY Optometry has a total of 107 faculty members (not counting 17 adjunct faculty). The faculty is 36.5% male, and 63.5% female, with races distributed as follows: 74% are White, 19% Asian, 5% Hispanic, 2% Black, and one percent Other.

As seen in Table 3, faculty in the OD program at SUNY Optometry presents a similar scenario compared to the national data with a high representation of White male faculty in high ranked positions (Table 2). Faculty members with rank of Distinguished Professor or Professor are 64.7% male, and in terms of race/ethnicity, 76.5% are White and 6% Asian. Assistant Clinical Professor is the largest and most diverse faculty rank, with 68% White, 21.2% Asian, 4.5% Hispanic, and 3% Black.

Table 3. Gender and Ethnicity of Clinical Faculty at SUNY Optometry

		Black	Hispanic	Asian	White	Other	Total	% total
		Professor (Distinguished Professor/Teaching Professor/Professor/Clinical Professor)*	Total			1	13	
	Men						11	64.71%
	Women						3	21.43%
	% of Category		0.00%	5.88%	76.47%			
Associate Professor (12 & 10 months)/Associate Clinical Professor)		Black	Hispanic	Asian	White	Other	Total	% total
	Total		1	4	19		24	
	Men						6	26.90%
	Women						18	73.07%
	% of Category		4.17%	16.67%	79.17%			
Assistant Clinical Professor/Assistant Professor Clinical Instructor		Black	Hispanic	Asian	White	Other	Total	% total
	Total	2	3	14	45	1	65	
	Men						19	28.79%
	Women						46	69.70%
	% of Category	3.03%	4.55%	21.21%	68.18%			
Total (Without Residents)		Black	Hispanic	Asian	White	Other	Total	% total
	Total	2	4	19	77	1	103	
	Men						36	34.95%
	Women						67	65.05%
	% of Category	2%	4%	18%	72%	1%		

*16 are tenure-track faculty

A. Vision Science

At SUNY Optometry, there are four full-time faculty teaching exclusively in the PhD program, 75% male, 25% female. 25% are Hispanic, 25% Asian and 50% White.

Table 4. Faculty teaching exclusively in PhD program by Gender and Race/Ethnicity

		Black	Hispanic	Asian	White	Other	Total	% total
		PhD Program	Total		1	1	2	
	Men						3	75%
	Women						1	25%
	% of Category		25%	25%	50%			

Tenure-Track Positions at SUNY Optometry

Tenure track positions include faculty who teach on both clinical and PhD programs, and exclusively in the PhD program. There are currently 23 tenure-track positions at SUNY Optometry. Twenty incumbents are tenured, one is on track, one position is open, and one is still under consideration. As seen in the table below, 85% of the tenured faculty are male and 15% female. Eighty percent are White, 15% Asian, and 5% Hispanic.

Table 5. Tenure-track faculty at SUNY Optometry by Gender and Race/Ethnicity

Tenured		Black	Hispanic	Asian	White	Other	Total	% total
	Total			1	3	16		20
Men			1	3	13		17	85%
Women					3		3	15%
% of Category			5%	15%	80%			
On Track	Women				1			

V. Faculty Retention, Recruitment, Hiring & Promotion

Faculty Retention. As seen in Table 6, from 2014 until May 2019 the College hired a total of 18 faculty members (72% female, 28% male): 5.6% were African American, 5.5% Hispanic, 27.7% Asian, 55.5% White, and 5.5% Other. Of the hired faculty, 77.7% were retained. The retention rate for female faculty (92%) members was higher than for males (60%), which was possibly due to the closure of a specialty clinic in which the two faculty members who founded the clinic were males. Retention of Asians and Whites were the lowest at 60% and 80% respectively. URM faculty had a retention rate of 100% for this five-year period.

Table 6. Retention of Faculty at SUNY Optometry by Rank, Gender and Ethnicity from 2014-19

Assistant Clinical Professor/Assistant Professor Clinical Instructor		Black	Hispanic	Asian	White	Other	Total	% total
	Total		1	1	5	8	1	16
Men							3	19%
Women							13	81%
% of Category		6.25%	6.25%	31.25%	50%	6.25%		
Retained	Total	1	1	3	7	1	13	81%
	Men						2	67%
	Women						11	85%
	% of Category	100%	100%	60%	87.50%	100%		
Associate Professor (12 & 10 months)/Associate Clinical Professor)		Black	Hispanic	Asian	White	Other	Total	% total
	Total				2		2	
Men							2	100%
Women								
% of Category					100.00%			
Retained	Total				1		1	50%
	Men						1	50.00%

	Women							
	% of Category				50.00%			
Total (Without Residents)		Black	Hispanic	Asian	White	Other	Total	% total
	Total	1	1	5	10	1	18	
	Men						5	28%
	Women						13	72%
	% of Category	5.56%	5.56%	27.78%	55.56%	5.56%		
<u>Retained</u>	Total	1	1	3	8	1	14	77.78%
	Men						3	60%
	Women						12	92.31%
	% of Category	100%	100%	60.00%	80.00%	100%		

Below are the faculty retention initiatives employed by the College:

- All F&A (Facility and Administrative cost recovery) generated is reserved for research development
- Faculty development fund – currently \$1,500/year per faculty
- All FT faculty receive 0.1 FTE for faculty development
- F&A and balance award sharing policy – 5% of F&A on grants to PI discretionary account; balances on industry-funded projects shared with PI
- Bridge funding policy using F&A and institutional research endowment (Schnurmacher Institute for Vision Research and F&A)
- Intramural funds for pilot projects (Schnurmacher Institute for Vision Research and F&A)
- Regular research speakers series brings top international researchers (SIVR colloquium series; VisioNYC series)
- Clinical Vision Research Center - support for clinical research projects and clinical trials
- College fosters a collaborative research environment – annual scholar’s dinner, pilot funding for collaborative translational research projects
- SUNY sabbatical program
- See list of all faculty development resources (Appendix II)

Faculty Recruitment.

Clinical Faculty (non-tenure)	Tenure-track Faculty (Cont. appointment)
<ul style="list-style-type: none"> • National search for each fulltime position • Identification and personal outreach to highly qualified prospects • Advertised at primary associations and conferences • Competitive salaries • Relocation package 	<ul style="list-style-type: none"> • National searches for experienced individuals or junior research with high potential for success • Identification and personal outreach to highly qualified prospects • Advertised at primary associations and conferences • Competitive start-up packages (\$750,000-1,500,000) <ul style="list-style-type: none"> ○ Based on experience and grant record ○ Includes lab construction ○ Two-three years of summer funding for tenure track positions (10 month salaries) ○ Major equipment for set-up ○ Technician/post-doc salaries for 2-3 years

	<ul style="list-style-type: none"> • Graduate student stipends covered for up to 5 years • Initially no or minimal teaching loads • F&A and balance award sharing policy – 5% of F&A on grants to PI discretionary account; balances on industry-funded projects shared with PI • Relocation package
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Faculty Hiring. The hiring process at SUNY Optometry is described on the flow charts below. The College has a comprehensive hiring system for clinical faculty (non-tenure) and tenure-track faculty. The College can improve its inclusive- based hiring practices by 1) familiarizing each member of search committee with concepts of inclusive excellence, and 2) providing implicit bias training to individuals with hiring responsibilities.

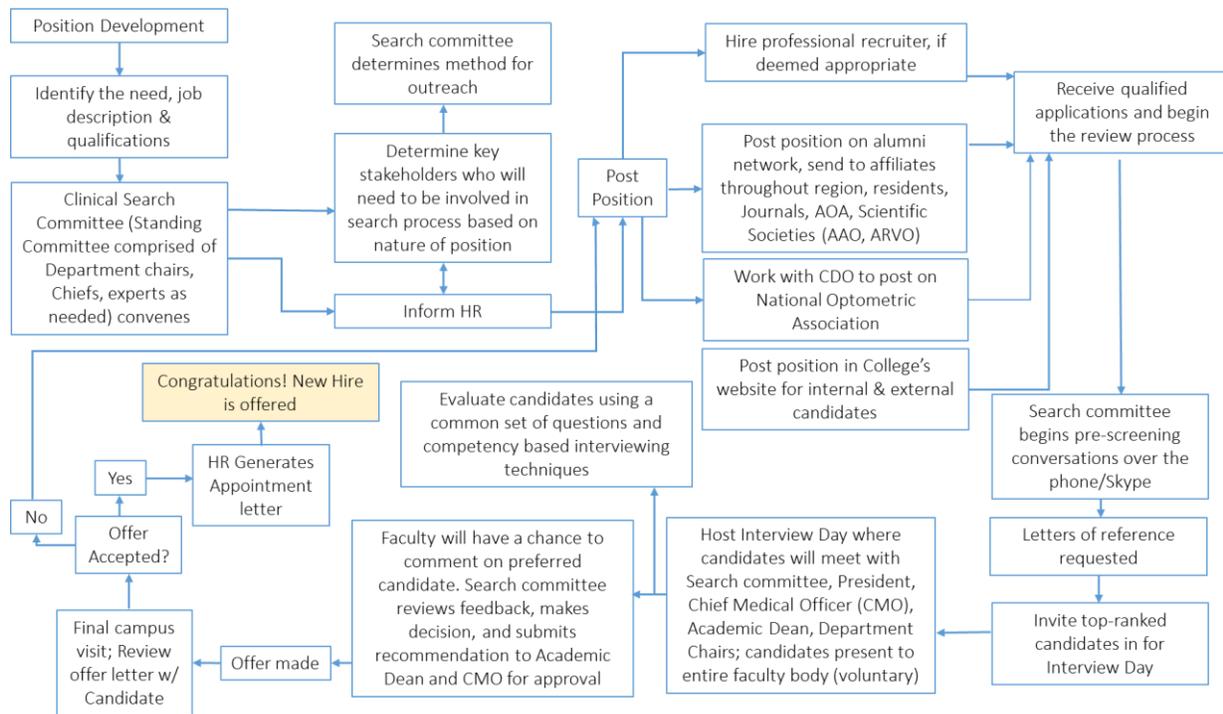


Figure 5. Hiring Flow for Academic/Clinical Optometry (non-tenure) Positions at SUNY Optometry

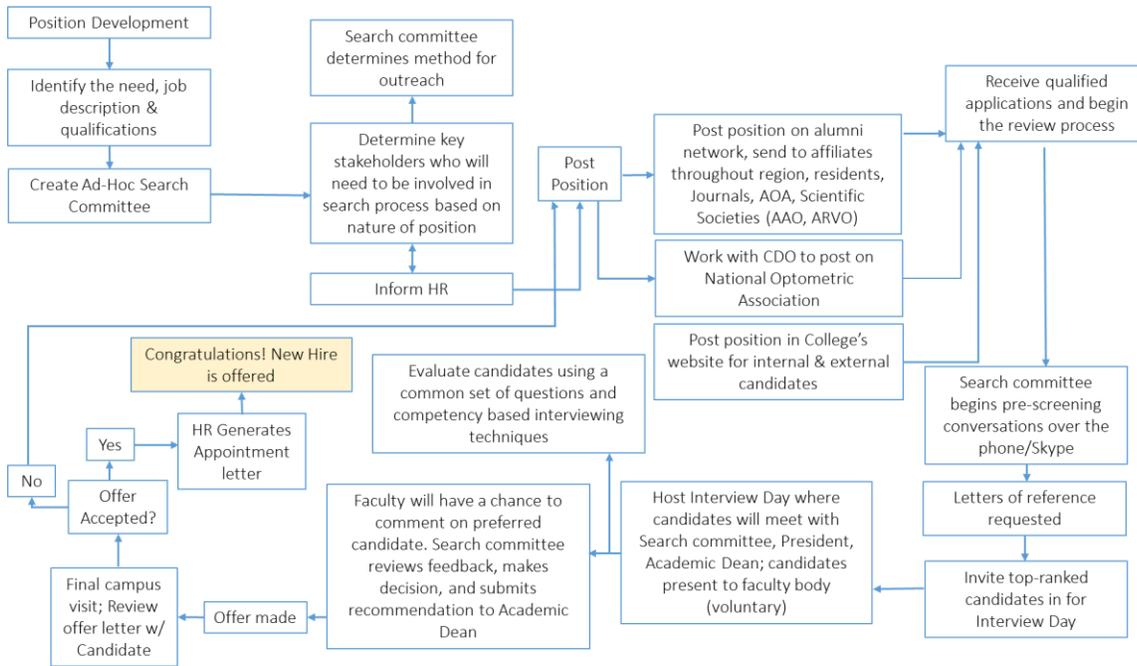


Figure 6. Hiring Flow for Tenure-Track Positions at SUNY Optometry

Hiring Step Analysis. A Hiring Step Analysis for Clinical (non-tenure track) Faculty positions and for tenure-track positions was created using best available data. The analysis for each category can be found below:

Clinical Faculty. 15 didactic/clinical faculty (non-tenure) members were hired from 2014-19: 25 were White (17 female and 8 male), 3 Asian (3 female) and 1 Middle-eastern female. Two Hispanics applied, but one did not meet qualifications and one was invited for an interview but turned it down.

Table 7. Clinical Faculty Positions 2014-2019 (Non-Tenure):

	Candidates Applied		Candidates Interviewed		Disqualified		Invited but turned down		Recommended by the search committee after interview		Not recommended by search committee after interview		Position offered and Accepted		Position offered and declined		Position not offered		Position offered under consideration	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Caucasian	17	8	12	3	5	3	0	2	11	2	1	1	8	3	3	0	1	1	0	0
Asian	9	7	8	3	1	3	0	1	6	2	2	1	2	1	3	0	2	1	1	0
Hispanic	0	2	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Middle Eastern	2	0	1	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0

Tenure-track position. As seen in the table below, from 2016-2019, one female was hired and an offer is currently under negotiation for a tenure-track position. A total of 8 White (4 male and 4 female) applicants, 18 Asian (14 male and 4 female), one Hispanic (male), and 3

Middle-Eastern (2 female and one male) applicants applied for the two positions. The selected candidate was an Asian female and a White Caucasian female.

Table 8. Tenure-track Faculty Search (2016-19)

	Candidates Applied		Candidates Interviewed		Interviewed but withdrawn by candidate		Disqualified		Recommended by the search committee after interview		Not recommended by search committee after		Position Not offered		Position Offered and Accepted		Position offered under consideration	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Caucasian	4	4	2	1			1	2	2			1				1		
Asian	4	14	2	2		1	2	11	2			2	1					1
Hispanic		1							1									
Middle Eastern	2	1	1				1	1			1							

Faculty Promotion. Faculty promotion initiatives at the College are explored below:

- Annual Promotion and Tenure workshop
- Faculty Development workshops and programs throughout the year
- Faculty sent to external development programs (ASCO Summer Institute for Faculty Development; specialty programs as appropriate)
- Direct mentoring by Department chairs – faculty development plan and assessment
- Annual reviews of goals and progress toward career/research/teaching objectives
- Non-tenure track options – clinical and adjunct faculty lines for clinicians and teaching faculty
- See list of faculty development resources

The specifications for faculty promotion are clearly specified under Committee on Professional Qualifications (CPQ) Policy Document (Appendix III). Faculty members holding qualified academic ranks may be considered for promotion after completion of five years at his/her current rank. Faculty members seeking promotion/tenure are required to present professional portfolio with a compelling case for promotion/tenure to the CPQ. The three principal criteria for promotion/tenure include scholarship/research, teaching and service. The candidate must prepare a narrative describing his/her goals and accomplishments. These narratives must cite supporting documents (e.g., papers, grants, teaching materials, etc.) that are included in the candidate's portfolio.

VI. Pipeline:

The pipeline into academic careers in Optometry reflects the diversity of the students enrolled in optometry schools, and their graduate and residency programs. This is due to graduate and residency degrees being requirements to access academic positions in Optometry.

The 2018-2019 report by ASCO^{xvi} describing enrollment data from the 22 Optometry schools in the United States and Puerto Rico indicates that 6,958 students enrolled in professional O.D. programs in the U.S. SUNY represented 5.5% of the total national enrollment (384 students).

The national overall percentage of female students was 68.4% compared to 72.7% at SUNY. The overall percentage of students identified as Black or African American was 2.7%, compared to 2.1% at SUNY; 5.8% were Hispanics compared to 5.5% at SUNY; 30% were Asian, compared to 43% at SUNY; 52% were White, compared to 42% at SUNY; 2% were Two or More races,

compared to 1.6% at SUNY; and 0.6% and 0.2% were American Indian or Alaska Native and Native Hawaiian, respectively, compared to 0% and 0.3% at SUNY.

Table 9. Race/Ethnicity of Students Enrolled in Optometry School Nationwide and at SUNY Optometry (2018)

Race/Ethnicity	Gender	All Schools	%	SUNY	%
<i>Black or African American</i>	Male	54	0.8	3	0.8
	Female	136	2.0	5	1.3
	Total	190	2.7	8	2.1
<i>Hispanic or Latino</i>	Male	113	1.6	9	2.3
	Female	291	4.2	12	3.1
	Total	404	5.8	21	5.5
<i>American Indian or Alaska Native</i>	Male	23	0.3	0	0.0
	Female	16	0.2	0	0.0
	Total	39	0.6	0	0.0
<i>Asian</i>	Male	545	7.8	47	12.2
	Female	1567	22.5	119	31.0
	Total	2112	30.4	166	43.2
<i>Native Hawaiian or Other Pacific Islander</i>	Male	3	0.0	0	0.0
	Female	11	0.2	1	0.3
	Total	14	0.2	1	0.3
<i>White</i>	Male	1312	18.9	39	10.2
	Female	2335	33.6	125	32.6
	Total	3647	52.4	164	42.7
<i>Two or More Races</i>	Male	42	0.6	3	0.8
	Female	99	1.4	3	0.8
	Total	141	2.0	6	1.6
<i>Unknown*</i>	Male	109	1.6	4	1.0
	Female	302	4.3	14	3.6
	Total	411	5.9	18	4.7
<i>Grand Total</i>	Male	2201	31.6	105	27.3
	Female	4757	68.4	279	72.7
	Total	6958	100.0	384	5.5

Table 10 below describes students' gender. At SUNY Optometry, the percentage of female students for the past 5 years ranged from 69%-79%.

Table 10. Gender by Class

<u>OD Class Year</u>	<u>Female</u>	<u>%</u>	<u>Male</u>	<u>%</u>	<u>Total</u>
2022	70	71%	29	29%	99
2021	66	69%	30	31%	96
2020	75	79%	20	21%	95
2019	71	73%	26	27%	97
2018	69	74%	24	26%	93

Table 11 below describes students' ethnicity and race. Diversity has increased in the past years, with 11% of the Class of 2022, 9% of the Class of 2021, and 8% of the Class of 2020 being comprised on URM. Historic numbers show that 10 years ago there were classes with no URM representation.

Table 11. Ethnicity by Class

<u>Ethnicity</u>	<i>OD CLASS YEAR</i>									
	2022		2021		2020		2019		2018	
<u>White</u>	37	37%	38	40%	50	53%	40	41%	44	47%
<u>URM</u>	11	11%	9	9%	8	8%	3	3%	5	5%
<u>Asian</u>	48	48%	43	45%	35	37%	40	41%	29	31%
<u>Foreign</u>	2	2%	5	5%	2	2%	10	10%	7	8%
<u>Two or more races</u>	1	1%	1	1%	0	0%	4	4%	8	9%
<u>Total Enrolled</u>	99		96		95		97		93	

As it can be seen in the data described above, neither the national nor the NYS numbers of optometrists, optometric faculty, and optometry students reflect the ethnic diversity of NYS and the US. This is an issue that SUNY Optometry considers of key importance. Despite the challenges, the College remains committed to its goal to attract and retain a multi-ethnic student body, one that reflects the diversity of NYS and the pool of students applying to optometry schools across the nation. In order to achieve the proposed multi-ethnic goals, strategies have been put in place (section VI).

Residency Education

Optometry school graduates seeking to advance their competencies in primary care or specialty areas may choose to pursue admission into a one-year residency program. Residency training is becoming a universal requirement for those looking to obtain employment in a number of practice settings including private and military hospitals, healthcare facilities and often even as an associate in a private practice setting. Schools and Colleges of Optometry require residency training as a prerequisite for those applying for clinical and academic positions. As such, residency programs play a major role in the faculty pipeline; the diversity of residency graduates is a direct predictor of the diversity of the faculty pool from which Schools of Optometry can recruit.

According to the office of Human Resources, from 2014 until 2019, 75 SUNY salaried residents have enrolled in SUNY Optometry's residency training program. 78.6 were females; 57% were White, 40% Asian, 1.3% Hispanic, and 1.3% Other. (Table 12).

Historic and comparative race and ethnicity data of applicants and enrollees are hard to gather since it is not collected by the centralized residency-match system, Optometry Residency Match (ORMatch), or by the Office of Residency Education at SUNY Optometry. Anecdotally, the number of URM in residency programs is low, which is why intentional strategies to increase diversity in residency programs are critical.

Table 12. SUNY Optometry Residents by Race/Ethnicity and Gender in 2019

Residents		Black	Hispanic	Asian	White	Other	Total	% total
	Total		1	30	43	1	75	
Men						16	21.33%	
Women						59	78.67%	
% of Category		1.33%	40.00%	57.33%	1.33%			

Graduate Program

Graduate degrees (OD/MS and PhD) are also considered pathways towards careers in academic optometry or in vision science related programs. In this section, we analyze gender and ethnicity in SUNY Optometry's PhD degree and OD/MS in Vision Science.

PhD Program

PhD Enrollment data for the past 5 years indicates that students are predominately male (57%), international (64%) and Asian (16%). The graduate international student body is very diversified, with students from Asia, Africa, Middle East, and Europe. There were no URM students from the US enrolled in the program in the past 5 years.

Table 13. PhD Enrollment by Gender

FULLTIME GRAD. PROGRAM					
	Female		Male		Total
2018-2019	3	25%	9	75%	12
2017-2018	5	38%	8	62%	13
2016-2017	7	50%	7	50%	14
2015-2016	7	50%	7	50%	14
2014-2015	7	50%	7	50%	14
TOTAL	29	43%	38	57%	67

Table 14. PhD Enrollment by Ethnicity/Race

<u>FULLTIME GRAD. PROGRAM</u>	<u>WHITE</u>		<u>ASIAN</u>		<u>FOREIGN</u>		<u>TOTAL</u>
2018-2019	0	0%	4	33%	8	67%	12
2017-2018	2	15.4%	2	15%	9	69%	13
2016-2017	3	21%	2	14%	9	64%	14
2015-2016	4	29%	1	7%	9	64%	14
2014-2015	4	29%	2	14%	8	57%	14
TOTAL	13	19%	11	16%	43	64%	67

As discussed in section II, the number of PhDs in areas related to vision science is predominantly White and Asian, posing major challenges for the recruitment of a diverse faculty.

OD/MS Program

From 2014 until 2019, 82% of the enrollees in the OD/MS program were female, 45% were Asian, 39% White, 9% International, 4%, Two or More Races, 3% Hispanic, and 1% Black. In the past year, an increase in the number of diverse candidates was observed, with 2 out of the 15 candidates (13.3%) being URM.

Table 15. OD/MS Enrollment by Gender

<u>OD Class Year</u>	<u>Female</u>		<u>Male</u>		<u>Total</u>
<i>2018-2019</i>	10	67%	5	33%	15
<i>2017-2018</i>	13	81%	3	19%	16
<i>2016-2017</i>	17	85%	3	15%	20
<i>2015-2016</i>	21	88%	3	13%	24
<i>2014-2015</i>	23	82%	5	18%	28
<i>Total</i>	84	82%	19	18%	103

Table 16. OD/MS Enrollment by Ethnicity/Race

<u>OD/MS</u>													
<u>OD Class Year</u>	<u>White</u>		<u>Black</u>		<u>Hispanic</u>		<u>Asian</u>		<u>Foreign</u>		<u>Two or more races</u>		<u>Total</u>
<i>2018-2019</i>	5	33%	1	7%	1	7%	6	40%	1	7%	1	7%	15
<i>2017-2018</i>	6	38%	0	0%	0	0%	7	44%	2	13%	1	6%	16
<i>2016-2017</i>	7	35%	0	0%	0	0%	10	50%	2	10%	1	5%	20
<i>2015-2016</i>	9	38%	0	0%	1	4%	11	46%	2	8%	1	4%	24
<i>2014-2015</i>	13	46%	0	0%	1	4%	12	43%	2	7%	0	0%	28
<i>Total</i>	40	39%	1	1%	3	3%	46	45%	9	9%	4	4%	103

Recruitment into the PhD program occurs primarily through online advertising, word of mouth and faculty's social networks. Recruitment for the OD/MS program occurs during the first year of

optometry school when the Graduate Program organizes an Open House in which graduate faculty present their research projects to interested students. Due to the paucity of diversity in both the PhD and OD/MS programs, it is paramount to understand the reasons why URM students are not attracted to and applying to these programs. As established earlier, students may simply not be interested in research or careers in academia, however, there are often misconceptions about the requirements and rigor of the program that need to be further investigated and addressed.

VII. Current Strategies

This section describes the College's current efforts to 1) increase diversity in the professional OD program and 2) encourage students to pursue careers in academic optometry, and 3) initiatives to encourage diversity in academic positions.

1) Initiatives to Increase Diversity in the Professional OD Program:

For a full analysis of the College's efforts to increase and instill diversity and inclusion, refer to the College's Diversity and Inclusion Plan available at

https://www.sunyopt.edu/pdfs/offices/diversity_inclusion_plan.pdf

CSTEP. The College receives funding from the New York State Education Department to support a College Science and Technology Entry Program (CSTEP) that has as its primary objective to increase the number of historically underrepresented minority students in the profession of optometry. Key components of the CSTEP program are the Summer and Winter Internship programs, a two-week immersive shadowing experience at the College's UEC, and the *Summer Academic Program* that offers a credit-bearing course entitled *Introduction to Vision and Optometry* at no cost to participants.

2) Initiatives to Encourage Students to Pursue a Career in Academic Optometry:

[Meet the Residents Showcase](#). Residencies are becoming a requirement for those seeking employment in clinical and academic positions, playing a critical role in the faculty pipeline. To that end, the Career Development Center (CDC) at the College has instituted the Meet the Residents Showcase event, in which current residents provide OD students with information on the benefits of a residency (including the broadening of career paths and a prerequisite for careers in academia), and tips on how to successfully apply for residency programs.

[Annual Career Symposium](#). The Annual SUNY Optometry Career Symposium hosted by the CDC is a forum that brings together students, residents, faculty and alumni for a day-long event to share career opportunities, trends, practices and innovations in optometry and optometric career development. More than 200 students participate in a daylong event that focuses on the five main modes of practice -- corporate, academia, private practice, hospitals and industry. Students have the opportunity to network with doctors and employers.

[Mentoring.](#) The SUNY Family of Mentors Program (FMP) is an online and in-person program that was developed to enhance students' and residents' personal, academic, and career development and to expand professional networks for students, residents and mentors. FMP seeks to capitalize on the vast network of SUNY alumni, professional organizations and partners from which to recruit the most talented mentors to develop our outstanding student body at our new networking platform, the SUNY Eye Network.

The mission of FMP is to connect students of optometry and residents with mentors in order to foster a trusting and long-lasting relationship that helps to develop students and residents personally, academically and professionally and allows the mentors opportunities to share wisdom and expertise, develop interpersonal communication, motivation, coaching, counseling, and leadership skills, and build professional networks.

3) Initiatives to Encourage Students to Pursue Research:

[Research Open House.](#) The Graduate Center for Vision Research sponsors an annual Research Open House each Fall Semester to assist new Ph.D. students and potential O.D.-M.S. students in the process of selecting Research Advisors. Graduate faculty, postdoctoral fellows, and graduate students meet with the new students and give presentations about their research and discuss opportunities for students in their laboratories.

[T-35.](#) Supported by a T35 training grant from the National Eye Institute (NEI), the 10-week program introduces optometry students to basic, translational and clinical vision research, as well as to critical thinking and problem-solving skills essential for research, clinical practice and patient care. Enrollment in the T35 program by gender and Ethnicity is presented below:

Table 17. T35 Enrollment by Gender, Race/Ethnicity (Summer 2017-2019)

	SUMMER 2017	%	SUMMER 2018	%	SUMMER 2019	%
MALE:	1	13%	5	63%	2	25%
FEMALE:	7	88%	3	38%	6	75%
URM	0	0%	1	13%	1	13%
TOTAL	8		8		8	

[CSTEP and Research.](#) CSTEP students have repeatedly expressed an interest in research. 12 URM CSTEP students have shadowed in a research lab after the completion of their programs (8 females, 4 males). In addition, 3 have expressed an interest to work in the lab (3 females, 1 male), out of which 2 were hired (2 females).

4) Initiatives to Increase Diversity of Faculty Members:

[National Optometric Association \(NOA\) Monthly Newsletter](#). The NOA is a national association with the mission of “advancing the visual health of minority populations.” SUNY Optometry informs the NOA of faculty and staff job openings at the College and the NOA distributes these job opportunities to its members through emails and its monthly newsletter.

Dispelling Disparities and Paying the Dream Forward:
 One #NOALegend's Commitment to Providing Open Doors of Equality
 Dr. Camille Cohen, NOA Director of Communications

Celebrate our 50th Year Legacy
 July 10-14, 2019 in Atlanta, GA
 Visit our [Site to Register TODAY!](#)
 The early bird rates have been extended... spread the word!

Job Opportunity: SUNY

The State University of New York College of Optometry is seeking applicants for a full-time Optometrist serving as an Assistant Director at Woodhull Medical Center. Woodhull is located in North Brooklyn and is part of New York City's Health & Hospitals public health care system.

[Click here](#) to read more and apply.

[Diversity Training](#). A diversity workshop was held in 2019 for faculty and staff with hiring responsibilities. Also invited to the workshop were the members of the Admissions Committee. The workshop covered topics such as implicit biases, stereotype threat, the danger of a single story, and cultural humility.

VIII. Barriers to Academic Careers

To better understand the barriers preventing URM optometrists to pursue careers in academia, the SUNY Optometry PRODiG Committee conducted a review of the literature (which focused primarily on medical schools due to the paucity of research on this issue in optometry), an on-line survey and unstructured discussions with students.

Literature Review

A study of medical graduates' academic medicine career intentions compared the change of students' interests in academic medicine by contrasting students' answers on the Association of American Medical Colleges' Matriculating Student Survey and Graduation Questionnaire.^{xvii}

- Change in students career intentions were categorized in sustained (started medical school considering a career in academic medicine and finished school with same interest), emerging (interest in academic medicine increased), diminishing (interest decreased) or no interest in academic medicine.
 - Of 87,763 respondents, intent to pursue a career in academic medicine was distributed as follows: 67% indicated no intent, 20% emerging intent, 8% sustained intent and 5% diminished.
 - Females were significantly more likely to have emerging intent in academia.
 - URMs were more likely to have no intent (69.5%) and less likely to have sustained intent (6.1%) in pursuing a career in academic medicine, an indication that URMs in medicine are entering medical schools without considering positions in academia.
 - URMs were also less likely to have emerging intent (18.7%), compared to White (18.9%) and Asians (24.1%), an indication that medical education experiences are not changing their perspective in pursuing a career in academic medicine.
 - The authors conclude that “a more racially and ethnically diverse medical graduate population likely will not result in greater URM representation among full-time medical school faculty simply by virtue of their increasing numbers in medical school.”
 - Achieving a critical mass of diverse physicians in leadership positions, early identification and support of URM students interested in academic medicine (even before medical school matriculation) are suggested strategies to end the persistent low numbers of URMs interested in academic positions.
- A study addressing the lack of URM representation in surgical faculty points out that a lot of focus has been given to the “pipeline effect,” which premises that an increase in the number of URM in medical schools will impact the number of URM in faculty positions, while this policy has not delivered the expected results.^{xviii} The study also discusses the implementation of mentoring program and the adoption of more radical solutions, like the “Rooney Rule” adopted by the National Football League (NFL), a policy that mandates that at least 1 URM candidate be interviewed every time a head coach position is vacant. This policy has increased the number of URM head coaches from 6% to 22% in just 4

years. The authors proposed the “Augusta Rule,” Lt. Alexander T. Augusta allegedly being the first minority to serve on the faculty of a medical school in the U.S.

SUNY Optometry Survey and Conversations with Students

A survey of SUNY Optometry students (n=96) shows a similar pattern when compared to national data on the intent on medical students in pursuing careers in academic medicine.

- 39 % of the respondents indicated intention of considering a career in academic optometry
- 38% of females compared to 45% of males had intent of considering a career in academic optometry
- 35% of URM respondents indicated intention of considering a career in academic optometry; Asians had the highest intent to consider a career in academic optometry (42%)

Highlights:

- Out of the 39 students who are considering a career in academic optometry, 16 (41%) said that their interest in a career in academic optometry (increased interest in academia) occurred after enrolling at SUNY Optometry. The main reasons that caused students to have an increased interest in a career in academic optometry were:
 - o SUNY Optometry’s faculty passion for their profession and organizational climate:
 - “I was never particularly interested in academia but since being at SUNY and seeing how much of an impact one can make in academia I am hoping to explore it more in the future and see if it is something I could see myself doing”
 - “The professors here all seem to love their careers”
 - “The warm community here and to see how proficient and knowledgeable SUNY optometrists are make me want to be helpful to the next generation, just as they are to us now.”
 - “My experience at SUNY has piqued my interest in academia because it seems like most of the doctors who work here have enjoyed their experience and speak highly of the institution.”
 - o Experiences tutoring/teaching:
 - “Tutoring others, being able to get to the student level and break complex material down in a simple way; While at SUNY at had the opportunity to tutor other students and I really enjoyed this. This is what initiated the thought of wanting to be involved in academia.”

The barriers to pursue a career in academic optometry as identified through the survey and conversations with students are presented below:

Interest. As a matter of personal preference, students may not be inherently drawn to a career in academia. Students often have set career goals and perceptions of their skills and abilities to succeed in their chosen modes of practice. For instance, students have shared through the survey that their career goal is to practice full time and to have one-on-one patient interaction,

not having interest in teaching or lacking the required public speaking skills for a teaching job, or not having the patience to deal with students.

When the Admissions Office visits pre-optometry clubs across the nation, roughly 80-90% of students demonstrate interest in pursuing careers in private practice. Shadowing at least three optometrists is a precondition for admissions. Although we encourage applicants to shadow optometrists in various modes of practice, most applicants will shadow their local optometrists in private or corporate practices. Programs like CSTEP and SUNY's own shadowing program allow applicants to shadow optometrists at an academic institution. However, it would be important to better understand what students are getting out of these experiences – are they focused on the patient care provided by optometrists who happen to be faculty members, or are they seeing themselves working at an academic institution teaching students and providing care, or a combination of both?

Financial considerations. Students often report financial concerns as one of the barriers towards pursuing a career in academia. Financial concerns can be separated into two intertwined but distinct issues – (1) high levels of debt upon graduation and the need to start repaying student loans instead of pursuing a residency or post-graduate degree and (2) perceived lower pay compared to other modes of practice.

Awareness/Representation. Students awareness of the benefits of careers in academia is lacking compared to other more popular modes of practice. Certain modes of practice are more widely promoted and discussed at Clubs and Organizations sponsored meetings. Although the College strives to promote the entire gamut of modes of practice available to students through structured programs (Career Symposium, Meet the Residents, Dining with Doctors), academia does not have equal representation when compared to private practice. Private practice receives a lot of floor time with various speakers visiting the College to speak about the advantages of this mode of practice. The Private Practice club at the College (SOAPP) is one of the largest and most prominent clubs on campus with strong industry backing. Speakers often preach about private practice with strong and convincing voices.

Perception of Preparedness. Student perception of the required qualifications to become a faculty member was another barrier identified through the survey. As identified by their open-ended comments, perceptions of requirements can often be mistaken or misguided. One student, for example, believed that she was unqualified to become a SUNY faculty because she was not a member of a specific honor society (i.e., BSK). Although grades are an important factor in the residency application process, not all students accepted into Residency programs are BSK students.

Other perceived barriers to academic careers are:

- Employability (there are 23 Colleges of optometry in the country)
- Pressure for having to conduct research and produce academic papers
- Additional and stringent requirements to become a faculty member (residency, research)
- Lack of autonomy

- Lack of mentors and role models (“people who look like me”)
- Willingness to relocate

IX. Key Findings (Pipeline Analysis)

- Optometry Program:
 - In the Optometry program, women are well represented in faculty positions; further representation is warranted in higher ranks.
 - The representation of women in higher ranks can be accomplished by the implementation of the personal development plans discussed in the next section.
 - URM faculty are underrepresented in optometry schools nationwide, including at SUNY Optometry.
 - Academic optometry competes against other modes of practices that have less barriers to entry (i.e., private practice); As with Academic Medicine, a lower number of optometry students have demonstrated interest in academic optometry (40%).
 - Optometry students have misconceptions about the requirements for a career in academic optometry.
 - These misconceptions need to be addressed (strategies are discussed in the next section)
 - Residency:
 - A one-year residency training is increasingly becoming a universal requirement for those looking to pursue a career in academic optometry.
 - Data of URM enrollment in residency programs is not captured making it difficult to estimate the number of URM residents*⁴.
 - Number of URM trained in the College’s residency program is low compared to the College’s student enrollment.

Figure 7a depicts the URM and Non-URM pipeline into academic optometry. While URM students represent 24.1% of college freshmen, they represent 9.3% of the student population in optometry schools nationwide and 7.9% at SUNY Optometry. Twenty six percent of optometry schools graduates pursue a residency after the professional program, compared to 35-40% at SUNY Optometry.

Historic and comparative race and ethnicity data of applicants and enrollees in residency programs are hard to gather since it is not collected by the centralized residency-match system, Optometry Residency Match (ORMatch), or by the Office of Residency Education at SUNY Optometry. Anecdotally, the number of URM students in residency programs is low, which is why intentional strategies to increase diversity in residency programs are critical. According to the office of Human Resources, from 2014 until 2019, 75 SUNY salaried residents have enrolled in SUNY Optometry’s residency training program. 1.3% were

⁴ According to the Association of Schools and Colleges of Optometry, race and ethnicity of residency applicants will be collected starting 2019-20.

Hispanic. Although other URM have joined the SUNY Optometry program during this period, they were not hired at the College's clinic and therefore are not captured in our numbers. URM representation in faculty positions nationwide is 9.6% compared to 6% at SUNY Optometry. Potential reasons for leaks in the pipeline are presented in figures 7a and 7b.

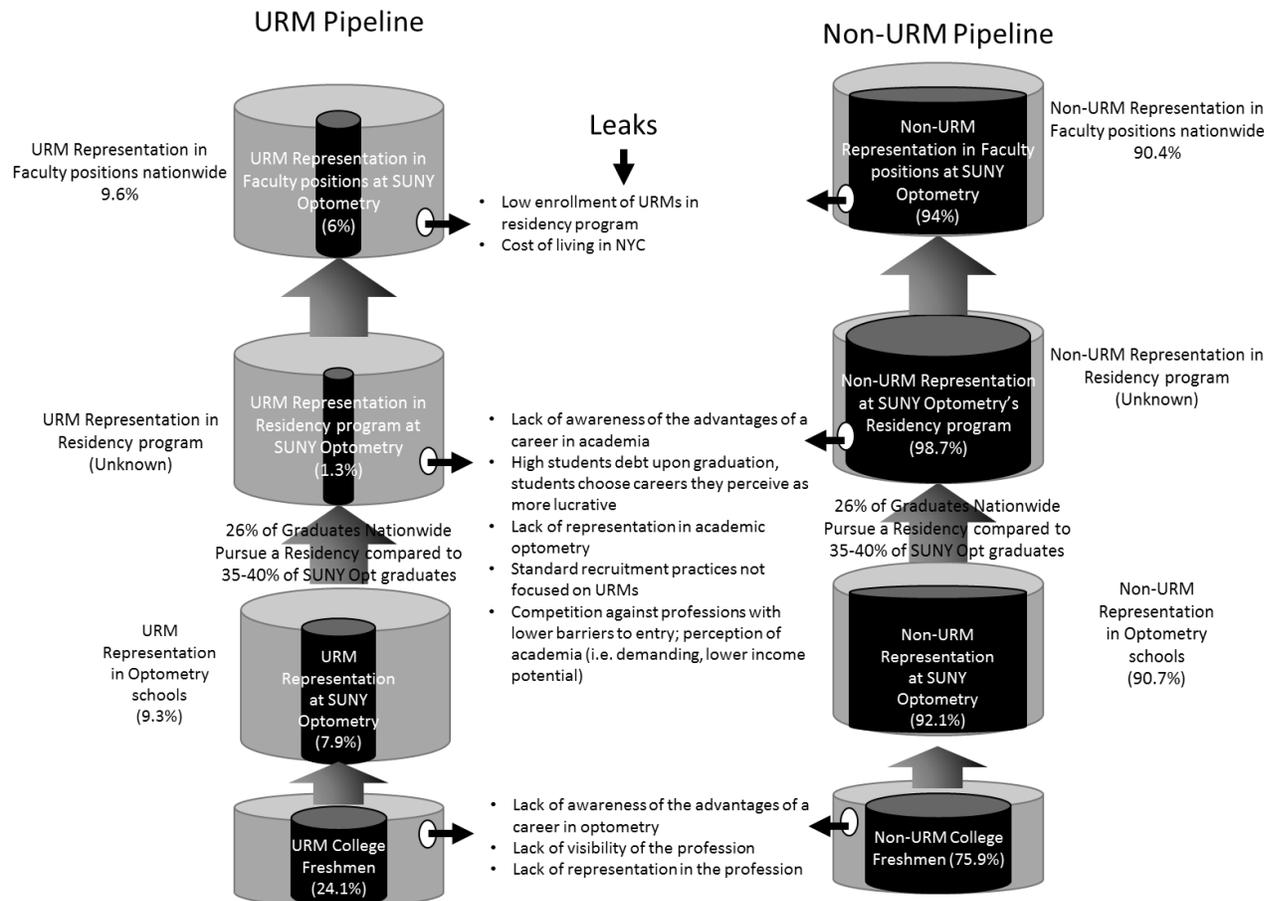


Figure 7a. URM and Non-URM Pipeline into Academic Optometry

- Recruitment, Hiring and Retention
 - Recruitment of URM faculty can be improved by tapping into minority serving organizations, former residents, and residency programs nationwide.
 - The College has a standardized and well-developed hiring process; hiring process can be improved by adding equity-based practices (i.e., implicit bias training).
 - The College has a robust retention program; program can be improved through the expansion of the mentoring program for faculty.
- Vision Science Faculty
 - Women and URM are underrepresented in vision science nationwide and at SUNY Optometry.

- Recruitment, Hiring and Retention
 - The College can tap into doctoral programs within SUNY System to recruit qualified faculty.

The Fishbone chart below highlights the most prominent identified causes of low URM representation in academic optometry.

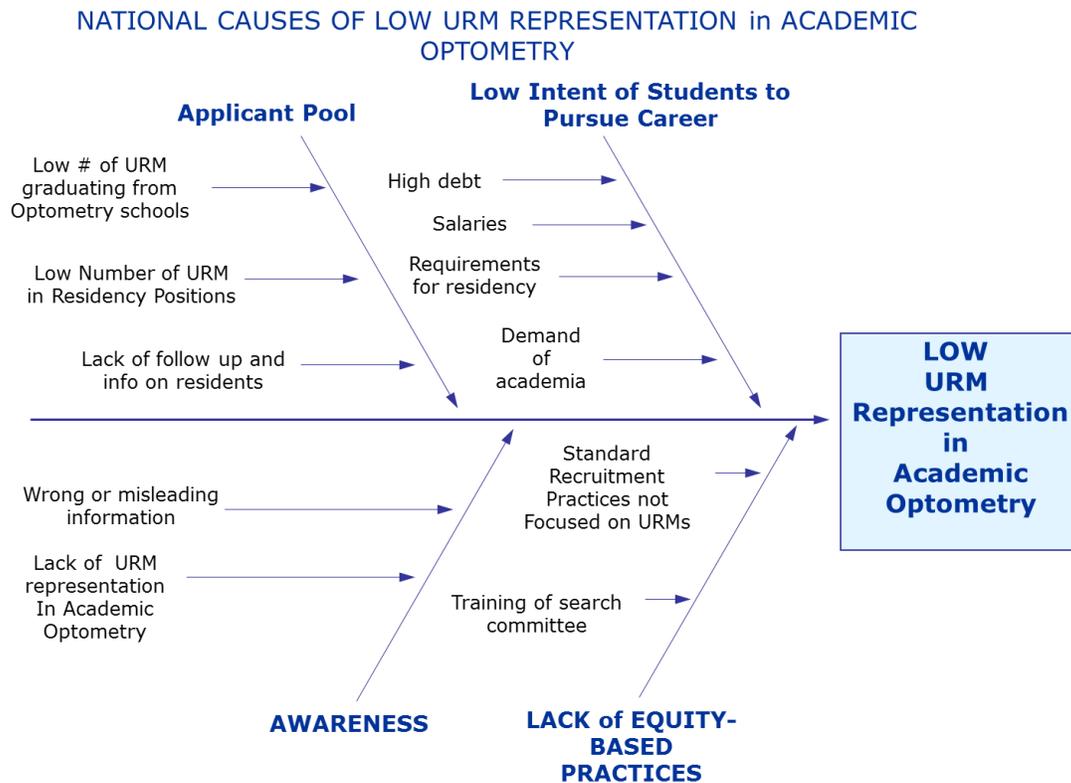


Figure 7b. Fishbone diagram of national causes of low URM representation in Academic Optometry

PART B. Proposed Strategy

The goal of the PRODiG project is to achieve “creative, deliberate, innovative, and strategic new plans for removing barriers to diversity.” With this important goal in mind, the PRODiG committee at SUNY Optometry proposes specific strategies that are in accordance with the College’s values, strategic goals, and that counter each of the barriers identified through this process.

The strategies proposed below are grounded on the following foundational institutional values:

- Leadership: we develop leaders and scholars in education, research and patient care.
- Innovation: we foster an environment that promotes creativity in optometric education, research and patient care
- Diversity: we respect the dignity of all individuals and value unique cultural perspectives and tradition
- Service: we enhance public health by making the highest quality patient care accessible to a broad range of communities

Bringing these values together, the College, as a leader in the field of optometry, strives to come up with innovative solutions to increase diversity, inclusion, and serve underserved communities.

The barriers identified in the analysis section are summarized in the following questions:

- Is academic optometry for me? Do I belong?
- What are the advantages of a career in academic optometry?
- What are the demands of a career in academic optometry (research, papers, presentations)?
- What are the qualifications for a career in academic optometry?
- Do I meet the qualifications for a residency program/academia?
- Can I afford seeking a residency program?
- With 23 schools of optometry in the country, what will the job market be like after graduation?

The proposed strategies are also founded on the expected value and outcomes expected by URM students when making career choices, namely: URM students are often interested in serving their communities and solving health disparities; flexibility; financial stability.

Goal 1. Increase URM and WSTEM in Tenure-Track and Vision Science Faculty

Positions:

Strategy 1.1. Offer competitive salaries and “start-up” packages for qualified tenure track faculty.

To attract highly qualified applicants for this position, the College offers a “Start-up” package, which guarantees 2-3 years of summer salaries (most tenure-track faculty are on 10-month contracts). PRODiG funding would help guarantee a “start-up” package that includes an

attractive salary structure for qualified incumbents. ***The College is requesting funding for two positions:***

Position 1. SUNY Optometry is currently in the process of hiring one faculty member to teach and conduct research in the area of Integrated/Geometric Optics, including specific research concepts such as translational research, AI, and adaptive optics (see Appendix IV for course description and position announcement).

Position 2. We expect to hire another tenured-track faculty in the next 2 years.

<u>Faculty 1. Request Y19-20:</u>	<u>Faculty 2. Request Y20-21:</u>
Year one: \$90k	Year one: \$90k
Year 2: \$45k	Year 2: \$45k
Year 3: \$27k	Year 3: \$27k

Strategy 1.2. Build a network with PhD Programs in the SUNY System

Various schools in the SUNY System offer PhD programs in areas related to the College's research mission (e.g., molecular biology, neuroscience, genetics). Whenever a tenure-track position is open, these departments should be contacted, and the position promoted to their graduating doctors and alumni. A list of schools and respective programs is available in Appendix V.

- ***Key Metrics:*** Schools contacted, and position promoted
- ***Cost:*** \$0

Goal 2. Increase URM and WSTEM Enrollment in Graduate Program in Vision Science:

Strategy 2.1. Build pipeline into graduate program by creating a network with graduate programs in the SUNY System that offer graduate programs related to vision science.

- *Various schools in the SUNY System graduate students with research training in areas that are of interest for the College Vision Scientists.*
- *Graduate Center at the College should send recruitment materials to the heads of selected departments within SUNY System promoting graduate program opportunities. A list of schools and respective programs can be found in Appendix VI.*
 - ***Key Metrics:*** Schools contacted, and program promoted to prospective students
 - ***Cost:*** \$0

Strategy 2.2. Offer financial incentives and relief for qualified students in the form of competitive stipends

SUNY Optometry enrolls 2-3 new students into its PhD in Vision Science program every year. We are requesting stipends for URM and WSTEM candidates qualified under the PRODiG guidelines.

- **Request:** 2 stipends per year for qualified students

Goal 3. Strategies to Increase Women in High Academic Rankings

Strategy 3.1. Expansion of current mentoring program and personal development plans (PDP) for faculty based on self-awareness, values, and goal setting (this project is scalable to SUNY System) PDP will outline the skills, experiences, accomplishments considered during the promotion revision process, ensuring transparency and objectivity. Each faculty will create a PDP based on personal career goals and self-reflection; PDP will then serve as a means for discussion with a faculty mentor/coach. Gaps will be identified and incorporated into an action plan.

- **Key Metrics:** Expand current mentoring program by coaching faculty on how to develop personal PDPs (concept can be shared across SUNY System); Train all managers and faculty with promotion decision making power on how to create effective personal development plans; Train all faculty on how to create their own personal development plans; Personal development plans made part of faculty annual review
- **Cost:** \$15,000 (personal development plan consultant fee; event costs)

Goal 4. Increase URM in Academic Optometry:

Strategy 4.1. Improve interest and awareness about careers in academic optometry

Question(s) answered: Is academic optometry for me? DO I belong? What are the advantages/benefits of a career in academic optometry?

4.1.1. **Overhaul message** about advantages/value of careers in academic optometry and residency, highlighting aspects that are important to URM candidates:

- Serve underserved communities
- Flexibility of practice
- Mitigate health disparities
- Diversify the profession
- Serve as role models in the recruitment and retention of URM students
- Have a direct impact on future ODs
- Advance the profession

4.1.2. **Engage faculty and staff in mentoring students** considering a career in academic optometry.

- **Key metrics:** Identify interested students; connect students with mentors
- **Cost:** No Cost

4.1.3. Incentivize minority students interested in academia to attend the American Academy of Optometry annual meeting

- **Key Metrics:** Number of URM attending Academy
- **Cost:** \$3,500 (5 students x \$700 travel grant) per year for 5 years = \$17,500

4.1.4. Create **National URM Academic Optometry Campaign**

- In collaboration with ASCO Diversity and Inclusion SIG, ask URM faculty to describe their reasons for choosing Academic Optometry and their personal trajectories; encourage faculty to submit videos of their personal journeys
- Create web page with personal stories
- Disseminate page to various schools
 - **Key Metrics:** Various components of campaign created and launched
 - **Cost:** \$1,500 (Video editing + collateral material creation) * 2 years = \$3,000

- 4.1.5. Engage stakeholders to ensure all hiring faculty/administrators fully understand and appreciate the diversity challenges that the profession faces and the mitigating strategies proposed in this plan.
- **Key Metrics:** *present Diversity and Inclusion Master Plan and PROGiD plan at key College meetings; Meet with hiring faculty/administrators and staff*
 - **Cost:** *No cost*
- 4.1.6. Create FAQ sheet about careers in academia to address misconceptions about academic career requirements
- **Key Metrics:** *FAQ created and disseminated*
 - **Cost:** *No cost*
- 4.1.7. Work in collaboration with CSTEP program to further promote careers in academic optometry and research.
- *Include a session in the CSTEP program in which URM faculty share with CSTEP students what is like to work in academia (CSTEP is a major source of URM into a career in optometry. Ensuring that CSTEP students feel represented by having URM teaching them is VERY important).*
 - *Recruit CSTEP students to shadow and potentially work at research labs at the College.*
 - **Key Metrics:** *number of CSTEP students that end up in academia; number of CSTEP students that shadow and work at research labs*
 - **Cost:** *No Cost*

Strategy 4.2. Prepare students for careers in academic optometry/residency

Question(s) answered: Do I meet the qualifications for a residency program/academia?

- 4.2.1. Academia Mentoring Boot Camp: Establish an annual Academic Optometry Mentorship Event promoting it primarily to NOSA and Irises students (this program will be recorded and available to graduate students across the SUNY System); Develop a concept similar to **ASCO's Summer Institute for Faculty Development and SUNY's Admissions Camp** focused on students who would like to pursue academic careers:
- One day workshop on
- Seeking mentoring; Time management; Writing papers; Study design; Writing posters; Residency application; Presentation skills
- This program would rely on early identification and mentoring of URM students who are interested in a career in academic optometry and will require mentoring by faculty members.
- **Key Metrics:** *URM students identified and invited to mentoring program*
 - **Cost:** *\$4,000/Year * 5 years = \$10,000 (speakers, video creation)*

Strategy 4.3. Enhance the pipeline of URM into residency programs

Question(s) answered: Do I qualify to be a resident/faculty?

4.3.1. Continue to generate interest in academic optometry by hosting programs such as “Meet the Residents Showcase”; proactively promote such programs to NOSA and SUNY IRISES

- **Key Metrics:** *Residents showcase delivered every year*
- **Cost:** *\$1,000/event/year * 5 years = \$5,000*

4.3.2. Study feasibility of creating a **pipeline** program into Residency/Academic Optometry

- The program would be similar to our joint degree program in that upon meeting specified requirements, a student will be accepted into X residency
- Consider whether the program should be for national students or just SUNY candidates
- It's important to make the requirements realistic, in which many URM applicants would be able to meet
- Make the distinction between accepting and matching, since there is a difference
- The residency should promote and focus on a commitment to the community as a means of minimizing health disparities for URM populations
- As such, we should also incentivize students to consider the pipeline program

Strategy 4.4. Targeted promoting of open positions at the College

4.4.1. Continue to work with NOA to promote open positions at the college to the national database

- **Key Metrics:** *Job openings submitted to NOA*
- **Cost:** *No Cost*

4.4.2. Determine the feasibility of establishing the “Augusta Rule” for faculty positions and PhD candidates

- To the extent possible, ensure that at least one URM or female candidate is invited to the first round of interviews by the Hiring Selection Committee when a position is open.
 - **Key Metrics:** *Number of URM and women candidates invited to first round of interviews*
 - **Cost:** *No Cost*

Proposed Budget Summary

Below is a five-year budget required for the implementation of strategies that require financial resources. The College is requesting PRODiG grants to cover salaries for 2 tenure-track positions

and two pipeline projects that can be scaled to other campuses within the SUNY System (3.1. and 4.2.1, highlighted in gray)

Table 18. Proposed Budget Summary

Project	Year 1	Year 2	Year 3	Year 4	Year 5	5 Year Total
1.1. Salary Budget						
Integrated Optics	\$90,000	\$45,000	\$27,000			\$162,000
Tenure-track Vision Science		\$90,000	\$45,000	\$27,000		\$162,000
Salary Total	\$90,000	\$135,000	\$72,000	\$27,000		\$324,000
2.2. Graduate Stipends						
\$5,000*2/year	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$50,000

Programmatic Budget						
3.1. Mentoring/Personal Development Plans	\$15,000					\$15,000
4.1.2. Travel Grant for American Academy of Optometry	\$3,500	\$3,500	\$3,500	\$3,500	\$3,500	\$17,500
4.1.3. National URM Academic Optometry Campaign	\$1,500	\$1,500				\$3,000
4.2.1. Academia Boot Camp Workshop	\$6,000	\$4,000	\$4,000	\$4,000	\$4,000	\$22,000
4.3.1. Meet the Residents Showcase	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$5,000
Programmatic Total	\$22,000	\$10,000	\$8,500	\$8,500	\$8,500	\$62,500
Grand Total	\$127,000	\$155,000	\$90,500	\$45,500	\$18,500	\$436,500

Implementation Team

The CDO, with the assistance from the PRODiG committee at SUNY Optometry (Appendix I) will be responsible for the implementation of the aforementioned strategies. The committee is formed by one student, the director of admissions, and members of the Academic Affairs team, including the Dean for Academic Affairs, the Director for Residency Education, Chief of Primary Care, and two graduate faculty. The AVP for Human Resources, and the chairs of the Clinical and Biological Sciences departments, whose responsibilities include chairing faculty search committees, will also collaborate with the PRODiG Committee.

The CDO will also work in collaboration with minority serving organizations in optometry, including the National Optometry Association, and its student chapter, NOSA, the Association of Schools and Colleges of Optometry's Diversity and Inclusion special interest group, and others.

Appendix I

PRODiG Committee (Alphabetical order)



Diane Adamczyk, OD, FAAO
Professor
Director of Residency Education



Diane Calderon, OD
Chief of Primary Care



Christian Alberto, MS
Director of Admissions



Stephen Murray II
OD Candidate, Class of 2022



Gui Albieri, PhD, Vice President for Student
Affairs and Chief Diversity Officer



Miduturu Srinivas, PhD
Professor



Alexandra Benavente, MCOptom, MS
PhD, FAAO



David Troilo, PhD, Dean & Vice
President for Academic Affairs

Appendix II

SUNY Optometry Faculty Development Resources

Over \$1,000,000 committed to faculty development in 2018-19

1. Faculty Development Committee - elected faculty committee “to assist faculty members in achieving excellence in teaching, scholarship and other areas of professional development.” Develops and coordinates workshops, intersession, and inservice programs for faculty development.
2. Primary supervisors (department chairs and service chiefs) are the principals responsible for new faculty orientation, annual evaluations and faculty development planning.
3. Faculty Development Time – all full-time faculty get 0.1 FTE unscheduled time for faculty development. This currently equals over 6.5 FTE, about \$780,000 of institutional funds per year (based on average FT salary, not including fringe benefits).
4. Schnurmacher Institute for Vision Research (SIVR) funds provides competitive intramural funding for collaborative pilot research projects (average \$30,000 per year).
5. The SIVR Research Colloquium Series provide educational seminars conducted by topic experts in vision science and clinic vision research from around the world. (\$35,000 per year).
6. Faculty development budget (retreat, workshops, travel awards) increased over 60% in 2018 from \$94,000 to \$153,000 (\$35,000 in 2013).
7. Individual faculty development funds for conferences, workshops, and other development opportunities more than doubled to \$95,000 in 2018 (\$43,000 in 2017).
8. OCNYS funds allocated for annual scholar’s dinner and faculty workshops (\$10-20,000 annually).
9. ASCO partnership funds directed exclusively to faculty development (\$10,000 in 2018).
10. A minimum of two faculty are nominated by Department Chairs and Service Chiefs and sent to the ASCO Summer Institute for Faculty Development (4 registered in 2019).
11. Support provided for attendance at and the ASCO/AAO Summer Research Camp Summer Research Camp when accepted.
12. Release time for faculty receiving UUP, AOF, and other funding to support faculty development projects.
13. Tenured faculty are eligible for sabbatical leave (5 months full pay or 10 months half pay) every seventh year following tenure.

14. Free and discounted CE programs for faculty through the Office of Continuing Professional Education. (In 2018, faculty saved more than \$33,000 attending SUNY CE events.)
15. Release time for faculty with approved unfunded special projects (workshops, degree programs, release time for research, etc.) provided upon request, review, and approval.
16. Research grant policies for faculty – salary offset, F&A fund discretionary, bridge funds.

Appendix III**COMMITTEE ON PROFESSIONAL QUALIFICATIONS (CPQ)
POLICY DOCUMENT**

Approved by the Faculty: 17 June 2010

Endorsed by the College Council: 8 June 2010

Approved by the President: 28 June 2010

Effective: 1 July 2010

Updated by Faculty: 20 December 2016

This CPQ Policy Document has been developed in accordance with the Policies of the Board of Trustees and the contract between United University Professions and the State of New York. Subsequent changes to either of those documents will take precedence over this CPQ Policy Document.

Confidentiality of Proceedings

Proceedings of the Committee are highly confidential. All documents should be carefully secured in the Office for Academic Affairs and all conversations, deliberations and interviews are to be strictly held as confidential by all members of the Committee. Under no circumstances may individual committee members divulge, relate or reveal discussions, voting patterns or recommendations to anyone outside the

Committee. Reports and recommendations to the president and vice president and dean of Academic Affairs (hereafter referred to as “Dean” or “VPAA”) shall be made solely by the Chair in writing.

Secretarial and Clerical Support

The Dean’s and/or President’s Office shall provide secretarial and clerical support to CPQ. Support functions may include contacting references, scheduling of meetings and preparing candidate portfolios to send out for review.

General Criteria for Promotion and Awarding of Tenure

The criteria for promotion and awarding of tenure shall be scholarship, teaching, and service. All faculty members, whether tenured/tenure earning or non-tenure earning, full-time or part-time, will be evaluated based on these criteria. The expectations for each, however, may vary according to the

department to which the faculty member is assigned and the specific negotiated written responsibilities of the faculty member.

External letters of recommendations are required for promotion and tenure reviews. While past achievements and potential for continuing productivity both are considerations for promotion in rank and the granting of tenure, the potential for continuing productivity is of particular importance in considerations of tenure.

Initial Appointment

A faculty member shall be hired in a tenured/tenure earning or non-tenure earning (qualified rank) position.

Subsequent transfer, after initial hire, from a tenured/tenure earning position to a qualified rank position or from a qualified rank position to a tenured/tenure earning position requires written approval of the president upon recommendation of the dean. Only in exceptional cases will a faculty in a tenured/tenure earning position, who is denied tenure, be subsequently offered a qualified position. Whenever such transfers are allowed from a tenure-track position to a qualified rank position or vice versa, individual ranks will be renegotiated between the president, dean and the faculty. For example, a change from Clinical Associate Professor does not necessarily translate to a rank of Associate Professor.

Standards to be Applied in Considerations of Promotion and Tenure

The expectations for performance in the areas of scholarship, teaching and service will be negotiated in writing at the time of hire and will reflect the expectations for promotion as described in the CPQ policies. The expectations may be changed at a later point upon written approval of the primary supervisor and dean. It is expected that a faculty member's academic assignments and responsibilities will reflect the negotiated emphasis and the expectations for promotion as defined by CPQ policy.

Continuing Appointment (Tenure)

The SUNY chancellor, after considering the recommendation of the President, may grant continuing appointment. The awarding of continuing appointment (tenure) is governed by the SUNY Policies of the Board of Trustees (Article XI, Appointment of Employees). At SUNY State College of Optometry, full-time faculty members holding non-qualified ranks of associate professor and professor may be considered for continuing appointment. Promotion to associate professor and the granting of tenure may occur concurrently. Only in exceptional cases will a faculty member be awarded tenure at initial appointment, and in such cases the candidate will be reviewed by CPQ prior to the awarding of tenure according to the criteria set forth in this document.

Faculty members are generally considered for promotion from assistant professor to associate professor after five years of service. A full-time faculty member may hold an appointment of assistant professor for no more than seven years, and further employment at SUNY State College of Optometry must be at the rank of associate professor (with or without tenure). Employment as professor or associate professor at SUNY State College of Optometry after the third consecutive year of employment at such rank must be on the basis of continuing appointment. While a non-tenured associate professor must be reviewed for tenure and/or promotion after one year in service at such rank, a tenured associate professor will generally be reviewed for promotion to professor after five years at such rank.

Leaves of Absence

For those faculty members who are on a tenure track and whose time in a rank is limited by Board of Trustee Policies, an official leave of absence, approved by the president, shall “stop the clock” during the duration of the leave of absence. The duration of the leave shall be specified in the approval letter.

Such leave of absence may be requested per College policy in relation to personal or family illness, pregnancy, childcare, or other circumstances. Leaves may be requested for full or part-time faculty.

Initiating the Review Process

The time-line for the review of tenure-track and tenured faculty is discussed above under Continuing Appointment (Tenure). Faculty members holding qualified academic ranks (clinical instructor, assistant clinical professor, associate clinical professor and clinical professor or research instructor, assistant research professor, associate research professor and research professor) may be considered for promotion after completion of five years at his/her current rank and only in exceptional circumstances may be considered earlier. After consultation with his/her primary supervisor, the candidate may request, in writing, a formal review by CPQ. A candidate may initiate a review without the support of their primary supervisor. This request, which the candidate is to send to the chair of CPQ with copies to his/her primary supervisor and the dean, should state the rank/status the candidate is seeking. *To be considered for a change in rank/status to be effective July 1 of the following year, a written request for review must be received by CPQ no later than September 1.*

A faculty member may be reviewed only once during an academic/fiscal year (July 1–June 30).

In the circumstance where continuation in a current rank will not be permissible as dictated by the policies of the Board of Trustees, the dean shall contact CPQ to initiate a review in time sufficient for issuance of a terminal contract in the event such a contract is warranted. For continuing appointment, the review process should be initiated by the administration prior to the sixth year of service for an assistant professor and prior to the second year of service for professor and associate professors.

After receiving a request for review and determining that the faculty member is eligible for review, CPQ will request additional information from the candidate (see Portfolio to be Prepared by the Candidate). CPQ will request information from the primary supervisor regarding the candidate's assignments (e.g. workload distribution, job description) and the expectations that should be applied to each review criteria. The primary and secondary supervisors will be asked to write a letter assessing the candidate's qualifications for promotion in the areas of teaching, scholarship and service and will be interviewed by CPQ.

Portfolio to be Prepared by the Candidate

It is incumbent upon the candidate to present a compelling case for promotion/tenure. For each of the three principal criteria (scholarship/research, teaching and service), the candidate shall prepare a narrative describing his/her goals and accomplishments. These narratives must cite supporting documents (e.g., papers, grants, teaching materials, etc.) that are included in the candidate's portfolio. A candidate may also submit additional supporting materials of which relevance will be made by CPQ. A copy of the candidate's most recent curriculum vitae must be included with the portfolio.

Completed portfolios are due no later than November 1.

Conflict of Interest

If a member of CPQ does not believe that he/she can conduct an impartial review of a candidate's qualifications for promotion and/or tenure, he/she shall inform the chair of CPQ and the dean and recuse themselves from the review of the candidate. If a candidate believes that a member of CPQ cannot impartially review his/her qualifications for promotion and/or tenure, he/she should notify the dean prior to requesting a formal review by CPQ. Due to potential conflicts of interest, only committee members at or above the rank being applied for should do the review. Members below rank should be recused and replaced by *ad hoc* members selected by the committee. In the event that more than one member of CPQ cannot participate due to a conflict of interest, the dean and CPQ will collaboratively select one or more alternate members to review the candidacy under consideration. Any alternative members must meet the eligibility requirements for CPQ as given in the Faculty Bylaws. Committee members with direct relationships with the applicant should divulge any conflict of interest for the record, and recuse themselves if the Committee feels it is necessary.

Letters of Reference

All considerations of promotion and tenure require external review by individuals who are not members of the faculty or staff at SUNY Optometry. The candidate shall nominate directly to CPQ potential references who can speak to their qualifications for tenure/promotion. Faculty members with tenured/tenure-earning appointments shall nominate to CPQ at least five individuals all of whom are at a faculty rank equal to or higher than that aspired to by the candidate.

Non-tenure track faculty members shall nominate to CPQ at least three individuals. At least two of these nominated individuals must hold faculty rank with one of these holding a rank equal to or higher than aspired to by the candidate.

CPQ will solicit letters of reference from at least three individuals taking into account the candidates recommendations, but shall not be bound by the candidate's recommendations. Reviewers will be given the candidates *Curriculum Vitae*, self-assessment narrative, other relevant information and the CPQ criteria for promotion.

All letters of references shall be sent directly to the chair of CPQ and included in the recommendation to the dean. CPQ may, at its discretion, request additional information from, confer and/or meet with references or other qualified individuals to assess a candidate's qualifications for promotion and/or tenure. A list of those interviewed, their rank, and relationship to the applicant shall be included in the confidential record. Funds, reasonable to this purpose, shall be made available by the Office for Academic Affairs to carry forth this function.

In addition to the letters of reference that shall be solicited by CPQ, the candidate may request that individuals send letters of recommendations directly to CPQ. It is the candidate's responsibility to ensure that all these letters of recommendation are received by CPQ in a timely manner. At the time

the candidate submits recommendations for letters of reference, he/she may also suggest individuals, both internal and external to SUNY Optometry, with whom he/she would like the committee to meet. CPQ may meet with these individuals at its discretion.

Recommendations Made by CPQ

CPQ will make a written recommendation directly to the dean. This recommendation will take the form of a letter that addresses the candidate's performance in each of three review criteria and will be accompanied by all supporting documents. Performance in each area will be rated as excellent, good, acceptable or not satisfactory. Voting by CPQ shall be by closed ballot. In its recommendation, which shall be signed by each of the committee members, the vote tally shall be included.

CPQ's letter to the dean, but not letters of reference/recommendation, shall be shared with the candidate. The Dean is not bound by the recommendations of CPQ and has a duty to perform an independent analysis of the candidate's credentials and potential for future success. The Dean makes his own recommendation to the President and forwards both recommendations to the President for consideration. The President has unfettered discretion in his review to accept or reject recommendations.

CPQ shall meet at least annually with the dean and president to present its recommendations and/or discuss policy issues.

Department of Biological and Vision Sciences: Criteria for Promotion and Tenure

The Department of Biological and Vision Sciences shall be constituted of faculty members with both tenured/tenure earning and non-tenure earning appointments. The ranks for the tenured/tenure earning positions are assistant professor, associate professor and professor. For non-tenure earning positions, the ranks are research instructor, assistant research professor, associate research professor and research professor.

Promotion and the awarding of tenure within the Departments of Biological and Vision Sciences requires excellent performance in teaching and scholarship and at least good performance in service unless otherwise agreed to in writing by the primary supervisor and dean. Scholarship for these departments shall be defined as the quality and quantity of original research (basic or clinical). The expectations for scholarship shall increase as the amount of a faculty member's effort assigned to this area increases.

Promotion to the rank of professor requires demonstration of national and/or international leadership.

Supporting Documentation: Department of Biological and Vision Sciences

Scholarship

Narrative that describes the candidate's research/scholarly interests and activities, discusses her/his contributions and their impact and cites, as appropriate, accompanying supporting documents including, but not limited to:

- Evidence of substantial and sustainable external funding to support individual research program
- Quality of research publications as indicated by impact factor and prestige of journals in which publications appear and number of citations
- Quality of traditionally published research monographs and chapters
- Quantity of research publications
- Invited talks
- Quality of scientific work as assessed by outside, independent reviews
- Recognition in the form of national and international awards and honors
- Securing patents that lead to production

Teaching

Self-assessment that includes teaching philosophy and objectives and cites, as appropriate, accompanying supporting documents including, but not limited to:

- Quality of course materials (including syllabi, handouts and examinations within the professional OD program, the MS degree program and/or the PhD program)
- Supervision of PhD/ MS students and post-doctoral fellows
- Placement of graduate students and post-doctoral fellows
- Peer-evaluation of teaching
- Quality and impact of traditionally published textbooks and textbook chapters
- Student performance on standardized examinations (e.g., NBEO)
- Quality and effectiveness of innovations in teaching and creative teaching methods
- Awards/honors for teaching/educational leadership
- Student feedback (e.g., student surveys)

Service (Professional, Public and University)

Self-assessment in which the candidate distinguishes between active service that demonstrates self-initiative, active participation and tangible outcomes and passive service and cites, as appropriate, accompanying supporting documents including, but not limited to:

- Leadership roles
- Committee service
- Departmental service
- Membership on grant reviewing study sections
- Service as journal referee
- Service as journal editor
- Service to professional organizations and associations (international, national, state, local)
- Service on the National Board of Examiners in Optometry
- Awards/honors

The Department of Clinical Education shall be constituted of faculty members with both tenured/tenure earning and non-tenure earning appointments. The ranks for the tenured/tenure earning positions are assistant professor, associate professor and professor. For non-tenure earning appointments, the ranks are clinical instructor, assistant clinical professor, associate clinical professor and clinical professor. While scholarship, teaching and service shall be the criteria for promotion for all faculty members in the Department of Clinical Education, scholarship will typically be more heavily emphasized for faculty members who hold tenured/tenure earning appointments. Teaching shall be defined as educational activities that occur in the classroom, laboratory and clinic within professional, graduate, residency and continuing education programs.

Promotion and the awarding of tenure within the tenured/tenure earning ranks requires excellent performance in teaching and scholarship and at least good performance in service unless otherwise agreed to in writing by the primary supervisor and dean. Evidence of excellence in scholarship in the Department of Clinical Education may include a record of publications in Index Medicus journals as principal investigator/author (including review papers and case reports), external funding for research or research training (e.g., NIH scientist-clinician training grants awarded to the candidate) and the traditional publication of books and book chapters. While external grant support is not required for tenure and promotion within the Department of Clinical Education, it is looked upon favorably, particularly when it substantially supports an independent research program. In all cases, the relative weighting given to each area will take into consideration the faculty's past assignments and allocation of time.

Promotion to the rank of professor requires demonstration of national and/or international leadership.

Promotion within the non-tenure earning ranks requires excellent performance in either teaching or service, with good performance in the other category, and acceptable performance in research as agreed to in writing with the primary supervisor and dean. Promotion to the rank of clinical professor requires demonstration of national and/or international leadership in either teaching or service.

Supporting Documentation: Department of Clinical Education

Scholarship

Narrative that describes the candidate's research/scholarly interests and activities, discusses her/his contributions and their impact and cites, as appropriate, accompanying supporting documents including, but not limited to:

- Original contributions to the professional literature
- Development of new approaches to the diagnosis and treatment of ocular conditions and diseases as evidence by publication and/or a broad adoption of the approach by the profession.

- Development and dissemination of new or modification of diagnostic and treatment tools, measures, equipment etc. as evidenced by publication and/or use by the profession.
- Quality of Index Medicus publications (original research, review papers and case reports) as indicated by impact factor and prestige of journals in which publications appear and number of citations.
- Evidence of external funding (governmental, industrial, private) to support individual research program and research training (e.g., clinician-scientist training grants)
- Quantity of publications
- Traditionally published books and book chapters
- Invited talks
- Presentations at scientific/professional meetings
- Reputation as a scholar as assessed by outside, independent reviews
- Recognition in the form of national and international awards and honors
- Evidence of consistent involvement and contribution to clinical research projects through the Clinical Vision Research Center including being PI of a project, participation in data collection, subject recruitment and patient referrals.

Teaching

Self-assessment that includes teaching philosophy and objectives and cites, as appropriate, accompanying supporting documents including, but not limited to:

- Quality of course materials (including syllabi, handouts and examinations) for the OD, MS, PhD, and residency programs
- Peer-evaluation of teaching
- Student performance on standardized examinations (e.g., NBEO)
- Quality and effectiveness of innovations in teaching and creative teaching methods
- Awards/honors for teaching/educational leadership
- Quality of continuing education courses given
- Supervision of research of OD, PhD and MS students and residents
- Student feedback (e.g., student surveys)

Service (Professional, Public and University)

Self-assessment in which the candidate distinguishes between active service that demonstrates self-initiative, active participation and tangible outcomes and passive service and cites, as appropriate, accompanying supporting documents including, but not limited to:

- Leadership roles
- Committee service
- Departmental service
- Administrative service
- National and international service (e.g. AAO, AOA, COVD, APHA, SVOSH)
- Service as journal referee
- Service as journal editor
- Service as grant reviewer
- Service in local and state optometric and health organizations
- Service on the National Board of Examiners in Optometry
- Service to professional organizations and associations (international, national, state, local)
- Awards/honor

Promotion/Tenure for Librarians

Librarians are faculty members who may hold the rank of Assistant Librarian, Senior Assistant Librarian, Associate Librarian or Librarian and are engaged in supporting the teaching, service and research mission of the College and its Faculty. The promotion criteria of scholarship, teaching and service shall reflect daily activities that include performing research for library users, providing service directly to students and to faculty, and developing publications which make the use of the library easier for its users.

The basic considerations in regard to the library faculty are competence in librarianship, service to the College, service to the library profession and to the community, initiative and creativity in developing library programs or problem solving and potential for continuing professional growth. Specifically the following should be considered:

- Communication, interpersonal and teamwork skills
- Administration and committee work within the College.
- Client-oriented library service -This criterion should be heavily weighed and well documented to public service librarians.
- Community Service - Participation in local and regional library association activities constitute a form of community service.

- Membership in professional organizations.
- Publications and presentations -Bibliographies, poster sessions, library guides, electronic products
(e.g., Web sites) and instructional materials constitute a form of publication.
- Research - Research done in conjunction with faculty and student requests constitute a form of research.
- Teaching -Public service librarians engaged in teaching on a one-to-one basis constitute a form of teaching.

Additional Criteria for Promotion to Senior Assistant Librarian

In addition to the above, the individual must demonstrate that he/she:

- Knowledgeable and competent in the professional practice of librarianship
- Open to the suggestions of peers (faculty within the library, as well as beyond.
- Works well with colleagues
- Works well with the public
- Is productive
- Gives evidence of ability to solve problems and demonstrates original thinking continues to develop through participation in continuing education and related development activities
- Participates in meaningful college service
- Publishes and presents relevant to his/her responsibilities
- Consistently makes sound decisions relevant to his/her responsibilities

Additional Criteria for Promotion for Associate Librarian

In addition to the above, the individual has demonstrated leadership qualities. As an example, the individual has:

- Identified problems and achieved solutions that are creative, practical and workable.
- Introduced new technology, or new ways to use existing technology which is beneficial to the institution and/or the user.
- Demonstrated the ability to identify a need, design a project and complete it within a reasonable time frame, i.e. created a publication to assist users, created a course to assist users, created a manual for student assistants and/or clerical support staff.
- Demonstrated effective time management and organizational skills.
- Demonstrated the ability to meet deadlines (their own or those of the organization).
- Demonstrated continued professional growth.

- Demonstrated service to their own profession as well as to the profession of Optometry.
- Demonstrated effective supervisory and management skills (if appropriate).

Additional Criteria for Promotion to Librarian

The candidate has demonstrated a level of leadership, expertise, accomplishments, organizational skills and service that is outstanding over time.

Continuing Appointment

Appointees are generally considered for promotion to associate librarian after five years of service. Employment of an appointee who has completed a total of seven years in the position of assistant librarian or senior assistant librarian must be on the basis of continuing appointment.

Criteria for Continuing Appointment are similar to the criteria for promotion to associate librarian. While past achievements and potential for continuing productivity both are considerations for promotion in rank and the granting of continuing appointment, the potential for continuing productivity is of particular importance in considerations of continuing appointment. In rare instances, an individual may achieve Continuing Appointment before he/she has sufficient accomplishments to be promoted to associate librarian. However, an individual recommended for Continuing Appointment must demonstrate sufficient initiative and leadership qualities to give the CPQ reason to believe that the candidate will qualify for promotion to the rank of associate librarian at a later date.

Adjunct, Temporary, and Non-Salaried Faculty Appointments

All adjunct, temporary and non-salaried faculty hold qualified appointments and service in these positions is not creditable toward the requirements of continuing appointment. Rank at initial appointment, which must be qualified, shall be determined by the dean following consultation with the relevant primary supervisor. Promotion in rank for adjunct faculty shall be made by the dean in consultation with the appropriate primary supervisor. Written policies, which are made available to CPQ, shall govern the assignment of rank at initial appointment and any subsequent adjustments in rank.

Emeritus Status

Faculty who retire in good standing shall be entitled to append the term “Emeritus” to the title of their academic or administrative post after the time of retirement. Specific privileges for each individual holding emeritus status shall be determined by the president in consultation with the dean.

Appeals

Appeals related to promotion and tenure shall be made in writing directly to the president no later than one month following a decision.

Appendix IV
Faculty Position in Optics Research and Ocular Imaging

Course Description: Integrated Optics

This is the first in a three-course sequence on clinical optics. Students learn the fundamentals of geometrical and visual optics as they apply to clinical practice. Topics include refraction at spherical and plane surfaces; image formation; thin and thick lenses; spherical ametropia; accommodation; astigmatism and cylindrical lenses; prisms; depth of field; magnification; retinal image size; reflection; and aberrations. Problem-solving skills are emphasized with the goal of developing an intuitive sense of optics that supports successful clinical interventions. Laboratories provide students the opportunity to visualize material covered in lectures.

Position announcement:

Position Title	FACULTY POSITION IN OPTICS RESEARCH AND OCULAR IMAGING
Position Description	<p>The Graduate Center for Vision Research at the State University of New York, College of Optometry invites applications for a tenure-track position from individuals who uses advanced optics and imaging techniques to aid in the study of visual structure and function in normal and abnormal eyes. The successful candidate will be expected to maintain an outstanding externally funded research program and to teach optics and mentor students in our professional optometry degree (OD) and graduate programs (MS and PhD). The Graduate Center for Vision Research (www.sunyopt.edu/research) consists of a scientifically vibrant community addressing a variety of basic and applied topics in vision science and includes the Clinical Vision Research Center where clinical research is performed in collaboration with the College's University Eye Center. The College is situated in the center of Manhattan's scientific, medical and cultural activities. Competitive salary and start-up funds will be provided.</p> <p>Applications will be considered at all ranks. The position will remain open until filled. Applicants should provide a CV, statement of research interests, reprints of up to three papers, and the names and contact information of three references.</p> <p>To view the College's Annual Security Report visit http://www.sunyopt.edu/offices/university_police/crime_report</p> <p>The SUNY College of Optometry is an Equal Opportunity Employer/Veterans/Disabled.</p> <p>Pursuant to Executive Order 161, no State entity, as defined by the Executive Order, is permitted to ask, or mandate, in any form, that an applicant for employment provide his or her current compensation, or any prior compensation history, until such time as the applicant is extended a conditional offer of employment with compensation. If such information has been requested from you before such time, please contact the Governor's Office of Employee Relations at (518) 474-6988 or via email at info@goer.ny.gov.</p>

Appendix V

Relevant Doctoral Programs in the SUNY System

Biochemistry, Biophysics and Molecular Biology			
Program Title	Campus	Award Level	Award Type
Biochemistry	Buffalo, University at	Doctorate	Ph.D.
Biochemistry	Cornell University	Doctorate	Ph.D.
Biochemistry & Molecular Biology	Upstate Medical University	Doctorate	Ph.D.
Biochemistry & Structural Biology	Stony Brook University	Doctorate	Ph.D.
Biomedical & Biological Sciences	Cornell University, NYS College of Veterinary Medicine at	Doctorate	Ph.D.
MOLECULAR & CELL BIOLOGY	Cornell University	Doctorate	Ph.D.
Molecular & Cellular Biology	Downstate Medical Center	Doctorate	Ph.D.
Molecular And Cellular Biology	Stony Brook University	Doctorate	Ph.D.
Molecular Biology And Biochemistry	Stony Brook University	Doctorate	Ph.D.
STRUCTURAL BIOLOGY	Buffalo, University at	Doctorate	Ph.D.
Biology, General			
Program Title	Campus	Award Level	Award Type
BIOMEDICAL SCIENCES	Albany, University at	Doctorate	Ph.D.
Biological Sciences	Binghamton University	Doctorate	Ph.D.
Biological Sciences	Buffalo, University at	Doctorate	Ph.D.
Biology	Albany, University at	Doctorate	Ph.D.
Cell/Cellular Biology and Anatomical Sciences			
Program Title	Campus	Award Level	Award Type
Anatomical Sciences	Buffalo, University at	Doctorate	Ph.D.
Anatomical Sciences	Stony Brook University	Doctorate	Ph.D.
Anatomy & Cell Biology	Upstate Medical University	Doctorate	Ph.D.
Computational Cell Biology, Anatomy & Pathology	Buffalo, University at	Doctorate	Ph.D.
MOLECULAR & CELL BIOLOGY	Cornell University	Doctorate	Ph.D.
	Cornell University, NYS College of Agriculture & Life Sciences at	Doctorate	Ph.D.
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Cognitive Science			
Program Title	Campus	Award Level	Award Type
Cognitive Science	Stony Brook University	Doctorate	Ph.D.
Genetics			
Program Title	Campus	Award Level	Award Type
GENETICS	Cornell University	Doctorate	Ph.D.
	Cornell University, NYS College of Agriculture & Life Sciences at	Doctorate	Ph.D.

Genetics	Stony Brook University	Doctorate	Ph.D.
Genetics, Genomics & Bioinformatics	Buffalo, University at	Doctorate	Ph.D.
Microbiological Sciences and Immunology			
Program Title	Campus	Award Level	Award Type
MICROBIOLOGY	Cornell University	Doctorate	Ph.D.
Microbiology & Immunology	Buffalo, University at	Doctorate	Ph.D.
Microbiology & Immunology	Upstate Medical University	Doctorate	Ph.D.
Molecular Genetics & Microbiology	Stony Brook University	Doctorate	Ph.D.
Neurobiology and Neurosciences			
Program Title	Campus	Award Level	Award Type
BEHAVIORAL BIOLOGY	Cornell University	Doctorate	Ph.D.
Integrative Neuroscience	Stony Brook University	Doctorate	Ph.D.
NEUROBIOLOGY	Cornell University	Doctorate	Ph.D.
Neural & Behavioral Science	Downstate Medical Center	Doctorate	Ph.D.
Neuroscience	Buffalo, University at	Doctorate	Ph.D.
Neuroscience	Stony Brook University	Doctorate	Ph.D.
Neuroscience	Upstate Medical University	Doctorate	Ph.D.
Pharmacology and Toxicology			
Program Title	Campus	Award Level	Award Type
Biochemical Pharmacology	Buffalo, University at	Doctorate	Ph.D.
Molecular And Cellular Pharmacology	Stony Brook University	Doctorate	Ph.D.
PHARMACOLOGY	Cornell University, NYS College of Agriculture & Life Sciences at	Doctorate	Ph.D.
Pharmacology	Buffalo, University at	Doctorate	Ph.D.
Pharmacology	Upstate Medical University	Doctorate	Ph.D.
Physiology, Pathology and Related Sciences			
Program Title	Campus	Award Level	Award Type
PHYSIOLOGY	Cornell University	Doctorate	Ph.D.
Physiology	Buffalo, University at	Doctorate	Ph.D.
Physiology	Upstate Medical University	Doctorate	Ph.D.
Physiology & Biophysics	Stony Brook University	Doctorate	Ph.D.
Research and Experimental Psychology			
Program Title	Campus	Award Level	Award Type
Behavioral Neuroscience	Albany, University at	Doctorate	Ph.D.
Behavioral Neuroscience	Binghamton University	Doctorate	Ph.D.
Behavioral Neuroscience	Buffalo, University at	Doctorate	Ph.D.
Cognitive Psychology	Albany, University at	Doctorate	Ph.D.
Cognitive Psychology	Binghamton University	Doctorate	Ph.D.
Cognitive Psychology	Buffalo, University at	Doctorate	Ph.D.

DEVELOPMENTAL PSYCHOLOGY	Cornell University	Doctorate	Ph.D.
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Appendix VI

Sample of Relevant Master's Programs in the SUNY System

Allied Health Diagnostic, Intervention, and Treatment Professions

Program Title	Campus	Award Level	Award Type
Medical Molecular Biology	Stony Brook University	Masters	M.S.

Chemistry

Program Title	Campus	Award Level	Award Type
Medicinal Chemistry	Buffalo, University at	Baccalaureate	B.S.
	Buffalo, University at	Masters	M.S.

Health and Medical Administrative Services

Program Title	Campus	Award Level	Award Type
Health Care Management & Public Health	Stony Brook University	Masters	M.B.A.
	Stony Brook University	Masters	M.P.H.

Medical Clinical Sciences/Graduate Medical Studies

Program Title	Campus	Award Level	Award Type
Clinical Research	Stony Brook University	Masters	M.S.

Pharmacy, Pharmaceutical Sciences, and Administration

Program Title	Campus	Award Level	Award Type
Medicinal Chemistry	Buffalo, University at	Masters	M.S.
Medicinal Chemistry	Buffalo, University at	Baccalaureate	B.S.
	Buffalo, University at	Masters	M.S.

Appendix VII

Doctorate recipients, by subfield of study and sex: 2017

(Number)

Subfield of study	Total ^a	Male	Female	% female
All fields	54,664	29,146	25,495	46.6
Selected Fields	5,322	2,656	2,665	50%
Biochemistry (biological sciences)	815	430	385	47.2
Biomedical sciences	341	154	187	54.8
Cell, cellular biology, and histology	234	118	116	49.6
Genetics and genomics, human and animal	345	157	188	54.5
Microbiology	410	192	218	53.2
Molecular biology	624	305	319	51.1
Neurosciences, neurobiology	985	482	503	51.1
Physiology, human and animal	165	94	71	43.0
Biological and biomedical sciences, general	391	177	213	54.5
Biotechnology, biology/biomedical sciences-other	145	63	82	56.6
Pharmaceutical sciences	292	147	145	49.7
Acoustics, optics/photonics	213	173	40	18.8
Cognitive neuroscience	199	97	102	51.3
Cognitive psychology and psycholinguistics	121	52	69	57.0
Neuropsychology, physiological psychology	42	15	27	64.3

Subfield of study	U.S. citizens and permanent residents															All doctorate recipients ^a	
	Total US Citizen and Race Declared	Hispanic or Latino		Not Hispanic or Latino											Ethnicity not reported		
				American Indian or Alaska Native		Asian		Black or African American		White		More than one race		Other race or race not reported			
All fields	35,791	2,540	7%	109	0.30%	3,502	10%	2,409	7%	24,880	70%	1,016	3%	471	1%	864	54,664
Selected Fields	3,691	284	8%	8	0.22%	489	13%	170	5%	2,505	68%	132	4%	49	1%	54	
Biochemistry (biological sciences)	531	46	9%	1	0.19%	73	14%	23	4%	350	66%	19	4%	9	2%	10	815
Biomedical sciences	242	19	8%	0	0.00%	45	19%	19	8%	137	57%	12	5%	3	1%	7	341
Cell, cellular biology, and histology	156	14	9%	1	0.64%	22	14%	6	4%	101	65%	7	4%	1	1%	4	234
Genetics and genomics, human and animal	243	13	5%	1	0.41%	32	13%	6	2%	174	72%	11	5%	4	2%	2	345
Microbiology	318	28	9%	1	0.31%	32	10%	17	5%	228	72%	12	4%	0	0%	0	410
Molecular biology	439	29	7%	1	0.23%	53	12%	21	5%	315	72%	8	2%	7	2%	5	624
Neurosciences, neurobiology	798	63	8%	1	0.13%	98	12%	30	4%	551	69%	34	4%	13	2%	8	985
Physiology, human and animal	128	10	8%	0	0.00%	15	12%	8	6%	90	70%	3	2%	2	2%	0	165
Biological and biomedical sciences, general	250	13	5%	0	0.00%	37	15%	15	6%	164	66%	8	3%	3	1%	10	391
Biotechnology, biology/biomedical sciences-other	87	9	10%	0	0.00%	15	17%	5	6%	51	59%	2	2%	2	2%	3	145
Pharmaceutical sciences	123	7	6%	0	0.00%	29	24%	14	11%	62	50%	3	2%	4	3%	4	292
Acoustics, optics/photronics	109	7	6%	0	0.00%	15	14%	3	3%	81	74%	2	2%	1	1%	0	213
Cognitive neuroscience	162	21	13%	1	0.62%	11	7%	2	1%	121	75%	5	3%	0	0%	1	199
Cognitive psychology and psycholinguistics	105	5	5%	1	0.95%	12	11%	1	1%	80	76%	6	6%	0	0%	0	121

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- ⁱ Jeffe, Donna B, PhD; Andriole, Dorothy A, MD; Hageman, Heather L, MBA; Whelan, Alison J, MD. (Sep 2008). Reaping What We Sow: The Emerging Academic Medicine Workforce. *Journal of the National Medical Association*, 100 (9), 1026-34.
- ⁱⁱ ASCO: <https://optometriceducation.org/volunteer/diversity/>
- ⁱⁱⁱ https://www.ucop.edu/uc-health/_files/optometry.pdf
- ^{iv} U.S. Department of Health and Human Services, Health Resources and Services Administration, National Center for Health Workforce Analysis. (2013). The U.S. Health Workforce Chartbook, retrieved from <http://bhpr.hrsa.gov/healthworkforce/supplydemand/usworkforce/chartbook/index.html>. ; Soroka, M. (2012). The New York State Optometry workforce study, *Journal of Community Health*, 37(2), 448-57; U.S. Census Bureau (2016). Retrieved from, <http://www.census.gov/quickfacts/table/PST045215/36#headnote-js-a>.
- ^v ASCO: Annual Faculty Data Report (Academic Year 2018-19). Available at <https://optometriceducation.org/wp-content/uploads/2019/02/ASCOAnnFacDataRepforWebsite18-19-1.pdf>
- ^{vi} Soroka, M. (2012). The New York State Optometry workforce study, *Journal of Community Health*, 37(2), 448-57.
- ^{vii} Emily A. Cooper, Ana Radonjić; Gender representation in the vision sciences: A longitudinal study. *Journal of Vision* 2016;16(1):17. doi: 10.1167/16.1.17.
- ^{viii} Emily A. Cooper, Ana Radonjić; Gender representation in the vision sciences: A longitudinal study. *Journal of Vision* 2016;16(1):17. doi: 10.1167/16.1.17.
- ^{ix} <https://nces.nsf.gov/pubs/nsf19301/data>
- ^x ASCO: Annual Faculty Data Report (Academic Year 2018-19). Available at <https://optometriceducation.org/wp-content/uploads/2019/02/ASCOAnnFacDataRepforWebsite18-19-1.pdf>
- ^{xi} <https://optometriceducation.org/jobscareers/career-opportunities-for-ods-in-academia-teaching-research-needs/>
- ^{xii} <https://optometriceducation.org/jobscareers/career-opportunities-for-ods-in-academia-teaching-research-needs/>
- ^{xiii} <http://www.reviewofoptometry.com/wo/surveys-and-news/article/wo-survey-finds-that-salary-and-income-are-not-discussed-often/>
- ^{xiv} <https://covalentcareers.com/resources/gender-and-optometry-wage-gap/>
- ^{xv} <https://www.ncbi.nlm.nih.gov/pubmed/27417618>
- ^{xvi} ASCO (2016). Annual Student Data Report: Academic Year 2015-2016. Retrieved from <http://www.opted.org/wp-content/uploads/2016/09/ASCO-Student-Data-Report-2015-2016-8-30-16.pdf>; There are presently 23 schools of optometry recognized by ASCO. The Chicago College of Optometry and University of Pikeville just recently opened and were not included in this report.
- ^{xvii} Jeffe, Donna B, PhD; Andriole, Dorothy A, MD; Hageman, Heather L, MBA; Whelan, Alison J, MD. (Sep 2008). Reaping What We Sow: The Emerging Academic Medicine Workforce. *Journal of the National Medical Association*, 100 (9), 1026-34.
- ^{xviii} Butler P.D., Longaker M.T., Britt L.D. (2010). Addressing the paucity of underrepresented minorities in academic surgery: can the "Rooney Rule" be applied to academic surgery? (2010) *American Journal of Surgery*, 199(2), pp. 255-262.