ARTICLE
Characterizing the Undergraduate Neuroscience Major in the U.S.: An Examination of Course Requirements and Institution-Program Associations

Kira M. Pinard-Welyczko[1*], Anna C. S. Garrison[1*], Raddy L. Ramos[2], & Bradley S. Carter[1]
[1]Neuroscience Department, Oberlin College, Oberlin, OH 44074; [2]Department of Biomedical Sciences, New York Institute of Technology, College of Osteopathic Medicine, Old Westbury, NY 11568.

Neuroscience is a rapidly expanding field, and many colleges and universities throughout the country are implementing new neuroscience degree programs. Despite the field's growth and popularity, little data exists on the structural character of current undergraduate neuroscience programs. We collected and examined comprehensive data on existing undergraduate neuroscience programs, including academic major requirements and institution characteristics such as size, financial resources, and research opportunities. Thirty-one variables covering information about course requirements, department characteristics, financial resources, and institution characteristics were collected from 118 colleges and universities in the United States that offer a major titled "neuroscience" or "neural sciences." Data was collected from publicly available sources (online databases, institutions' neuroscience program websites) and then analyzed to define the average curriculum and identify associations between institution and program characteristics. Our results suggest that the average undergraduate neuroscience major requires 3 chemistry, 3 biology, 3 laboratory, 2-3 neuroscience, 1 physics, 1 math, and 2 psychology courses, suggesting that most neuroscience programs emphasize the natural sciences over the social sciences. Additionally, while 98% of institutions in our database offer research opportunities, only 31% required majors to perform research. Of note, 70% of institutions offering a neuroscience major do not have a neuroscience department, suggesting that most institutions offer neuroscience as an interdisciplinary major spanning several departments. Finally, smaller liberal arts colleges account for the majority of institutions offering a neuroscience major. Overall, these findings may be useful for informing groups interested in undergraduate neuroscience training, including institutions looking to improve or establish programs, students wanting to major in neuroscience and employers hiring neuroscience graduates.

Key words: undergraduate education; neuroscience major; academic curriculum requirements; undergraduate research

With increasing knowledge of the brain and behavior in recent years, neuroscience continues to develop as an exciting field and has grown immensely popular among undergraduate students. From 1996-2006, the number of undergraduate neuroscience programs in the U. S. tripled (Ramos et al., 2011). Further, STEM fields continue to grow in line with projected increases in jobs requiring STEM skills (National Science Board, 2015; U. S. Congress Joint Economic Committee, 2012). Neuroscience is also an attractive option for students as an interdisciplinary field. Further, as neuroscience evolves as a field, professions and graduate training adapt to accommodate new information and changing demands (Akil et al., 2016). Despite the field's growth and popularity, little data exists on the structural character of current undergraduate neuroscience programs. Knowledge of undergraduate neuroscience degree requirements is useful for many groups of people, including students considering majoring in neuroscience, academic administrators and faculty implementing neuroscience programs and curriculum, and employers considering hiring neuroscience majors.

Given this context, what does a neuroscience major entail? The goal of this study was to characterize the nature of undergraduate neuroscience majors in the United States in terms of course requirements and institutional character. There is no published information to date about the current average neuroscience curriculum and major requirements appear to vary significantly across institutions. Defining the academic features of undergraduate neuroscience majors will allow institutions to make more informed decisions regarding their curriculum when attempting to improve their programs. We recognize that there is a high amount of variability across undergraduate neuroscience programs, which is arguably a positive factor for such a diverse field. However, existing programs may still be motivated to adapt and modify their programs based on the curricular information supplied in this article. This information could also allow prospective students to (1) compare programs between institutions when selecting an undergraduate institution and (2) compare neuroscience requirements with other fields of study.

Characterizing neuroscience majors also allows for the examination of relationships between resources, curriculum, and other program aspects over time. The most recent study of undergraduate neuroscience programs was published 5 years ago and examined program nomenclature and overall program growth within the U. S. (Ramos et al., 2011). The current study aims to show how undergraduate neuroscience programs compare in terms of structure and requirements. Using publicly accessible information from program websites, structural aspects of undergraduate neuroscience degrees were

compared across all existing programs (labeled 'neuroscience') in the U. S. Overall, this study aims to define the average neuroscience major to inform prospective neuroscience students and universities looking to develop a neuroscience curriculum or major.

METHODS

First, a list of all colleges and universities in the United States that offer an undergraduate neuroscience major was compiled. To mimic prospective student searching, prominent publicly available databases were used to establish a comprehensive list of institutions offering a "neuroscience" major (Cappex and College Board; 118 institutions. See Supplement 1, complete dataset; Supplement 2, list of institutions without neuroscience major). Upon manual inspection, both of the aforementioned source databases included institutions with exclusively graduate programs, despite the specification of "undergraduate neuroscience programs" in the search criteria. This observation indicates these popular databases could mislead searchers by incorrectly identifying institutions with undergraduate neuroscience majors. All institutions only offering graduate studies in neuroscience were eliminated from our dataset.

Institutions that did not have undergraduate majors titled "neuroscience" or "neural sciences" (hence referred to collectively as "neuroscience") were also excluded from the dataset (e.g., a major titled "brain sciences" has neuroscience content but was not included. See Supplement 3, list of institutions with neuroscience-related majors). Institutions that offered both BA and BS degrees in neuroscience were counted as a single degree program. Additionally, a subset of institutions required that students choose an area of specialization within the neuroscience major. These institutions had different requirements for their respective degrees or specializations and were therefore excluded from any analyses involving course-related variables. After creating a school list, a list of pertinent variables (31 total) was determined by reviewing institutional websites and collected for analysis. A list of collected variables is detailed below (Table 1) (See Supplement 1, complete dataset).

School characteristics

Graduate level neuroscience offerings were recorded along with type of university (public or private; big or small; research, liberal arts, or other). In order to use the size of institutions as a categorical variable in analyses, a cutoff value between the median and mean was chosen to

Category	Variable	Definition/Explanation
Institutional Character	Graduate Studies	Does the school offer graduate level neuroscience programs?
	Type of University (Public/Private)	Is the school public or private?
	Type of University (Big/Small)	How many students does the school have? (>6000 = Big)
	Type of University (Research, Liberal Arts, Other)	Does the school identify as a Research Institution, Liberal Arts College, or Other?
	Graduate Enrollment	Total graduate student enrollment
	Undergraduate Enrollment	Total undergraduate student enrollment
Course Curriculum	Chemistry Courses	Number of chemistry courses required for neuroscience major
	Physics Courses	Number of physics courses required for neuroscience major
	Biology Courses	Number of biology courses required for neuroscience major
	Math/Statistics Courses	Number of math and/or statistics courses required for neuroscience major
	Psychology Courses	Number of psychology courses required for neuroscience major
	Neuroscience Courses	Number of neuroscience courses required for neuroscience major
	Other Courses	Number of other courses required for Neuroscience major
	Total Required Courses	Total number of courses (including electives) required for neuroscience major
	Total Elective Courses	Total number of electives required for neuroscience major
	Total Labs	Number of separate lab courses required for neuroscience major
	Total Advanced Courses	Number of required courses at 300 level or higher
	Total Introductory Courses	Number of required courses at 0-200 level
Research	Research Requirement	Is research required for neuroscience major?
	Research Opportunity	Are opportunities for research available to neuroscience major undergraduates?
	Honors	Is honors offered to neuroscience major students in the form of an independent research project?
Financial	Total Endowment	Total school endowment from 2015
	Endowment per Student	Calculated by dividing total endowment by total number of students (graduate + undergraduate)
Department	Department	Is there a department for neuroscience?
	Minor	Is a neuroscience minor offered?

Table 1. Descriptions of collected data variables for neuroscience major.

separate institutions. Institutions with 6,000 students or less were labeled 'small', while institutions with over 6,000 students were labeled 'big.' Total graduate and undergraduate student enrollments were also recorded (undergraduate enrollment, mean = 8195, median = 2643).

Course curriculum variables

'Other' departments included computer science, sociology, philosophy and religion. Total required courses, total elective courses, and total required labs were also recorded. Required courses in each discipline were counted from major requirement pages available on school websites. Labs were only counted if listed as courses for credit (with the word "Lab" in the course title), separate from other courses (Ex: If CHEM101 required lab and lecture as components of a single course, the lab portion was not counted as a lab course). Lab courses were most commonly found in Biology and Chemistry departments, although based on our criteria, lab courses from any department could be included. Courses were also categorized by level (either introductory [0-200 level] or advanced [300+ level]).

Research variables

For the purposes of this study, honors included only programs that required an independent research project. Programs that used 'honors' to denote high GPA or advanced course load were not counted towards the Honors variable because they did not require research.

Financial variables

Endowment per student was also calculated using the total number of students enrolled at the school, including both undergraduate and graduate students. Enrollment information and endowment values were compiled from Wikipedia, The Chronicle of Higher Education, and US News using 2015 values.

Department variables

The term "neuroscience program" is used to refer to all neuroscience majors in this study, whether they had their own department or were constructed as interdisciplinary programs spanning several other departments. Faculty members were only counted if directly listed as a part of the school's neuroscience program or department.

Analysis Methodology

All analyses were conducted using SPSS statistics. Correlational analyses were run across all variables to identify significant relationships; independent samples t-tests were used to examine the differences between groups across variables. All significant correlational relationships across all variables can be found in the supplemental material (see Supplement 4, heatmap of correlations between all 30 collected variables). A subset of correlations is included (Table 3) to highlight relationships across variables that were (a) not intuitive (e.g., the positive correlation between number of chemistry courses and number of biology courses required was not included), and (b) relevant to our goal of characterizing the average undergraduate neuroscience major.

Throughout data collection, certain variables could not be found for every institution (e.g., neuroscience-specific faculty could not be accurately counted for institutions without dedicated neuroscience departments). In these cases, missing data for an individual institution was excluded from analyses relating specifically to that variable. All significant results discussed used between 115 and 118 institutions (out of the 118 total included in the database), with the exception of correlations with Lab Courses (data only available for 77 institutions).

RESULTS

DATASET DESCRIPTIVES

School Characteristics

Data collected on school characteristics provides information about which types of institutions have had both the motivation and resources necessary to implement undergraduate neuroscience majors. Within the dataset, 24% of institutions were public and 76% were private. In addition, 38% of institutions could be defined as research institutions, which were approximately half public and half private. Forty percent of institutions had over six thousand undergraduate students. This institution characteristic data suggests that the majority of institutions currently offering an undergraduate neuroscience major are small, private liberal arts colleges (Figure 1).

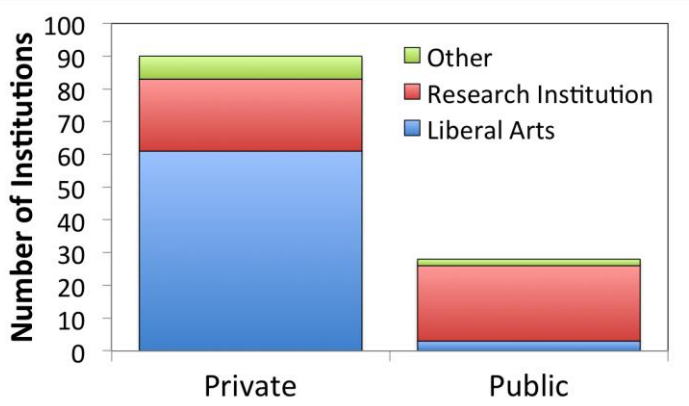

Figure 1. Neuroscience major distribution by institution type. "Other" is defined as any institutions not identifying themselves as research or liberal arts institutions.

Average Curriculum

One of the main goals of this study was to characterize the average neuroscience major curriculum in order to inform program administrators and institutions seeking to develop major programs. The average neuroscience major primarily requires courses in natural sciences, math and psychology. The average core curriculum includes: 3 chemistry, 1 physics, 3 biology, 1 math, 2 psychology, 2-3 neuroscience, 3 laboratory courses, and 5 elective courses. For the purposes of this study, 'math' courses included both research methods and statistics courses. The average number of courses required was 22, and among these, 10 courses were at the introductory level, 7 were advanced, and electives varied in course level (Table

2). A subset of programs also required courses in philosophy, sociology and computer science.

	M	*SD*
Chemistry	2.83	1.84
Physics	0.90	1.30
Biology	2.83	1.95
Math/Statistics	1.28	1.07
Psychology	1.90	1.69
Neuroscience	2.50	2.01
Other	0.32	0.69
Labs	2.97	2.65
Introductory	9.99	3.79
Advanced	7.47	3.79
Electives	4.92	3.06

Table 2. Average (M) number and standard deviation (SD) of courses per category required for an undergraduate neuroscience major.

Research & Honors

Neuroscience is a constantly changing field due to active research and new additions to the knowledge base. For this reason, conducting scientific research is often thought of as an important aspect of neuroscience training. Therefore, the proportion of programs that included research as part of curriculum or course offerings was examined. Of the 118 included institutions, 31% required research of majors, while 98% offered optional research opportunities. 33% of liberal arts institutions and 22% of research institutions required research.

Honors programs were also examined as they provide students with the opportunity to independently plan and complete a research project. Sixty-six percent of institutions offered this option to students.

Endowment

There was a very large range within the total endowment and endowment per student variables. Mean total endowment was $1.25 billion with a standard deviation of $2.65 billion; median total endowment was $368 million. The mean calculated endowment per student was $190,000 with a standard deviation of $330,000.

Graduate Studies in Neuroscience

The majority of institutions with undergraduate neuroscience majors (67%) did not offer graduate studies in neuroscience. Seventy-five percent of research institutions and 5% of liberal arts institutions offered graduate studies.

Neuroscience Department & Minor

The majority of institutions with neuroscience majors did not have a dedicated neuroscience department (70%) and did not offer a neuroscience minor (70%).

DATASET ANALYSES

School Characteristics

Correlational analyses revealed that certain types of institutions were significantly associated with specific program characteristics. Research institutions were moderately positively associated with more chemistry, physics, math and lab courses, as well as more advanced courses in general (Table 3). Further, total student enrollment was moderately positively associated with the number of advanced courses available. We speculate that these relationships are associated with generally greater high-level course offerings in the natural sciences at research institutions as compared to smaller liberal arts institutions.

Institutions with neuroscience graduate programs were also found to require significantly more courses overall to complete an undergraduate neuroscience major (M = 24.5, SD = 7.8) as compared to institutions without neuroscience graduate programs (M = 20.0, SD = 7.0) ($t(72) = 2.59$, $p<0.05$). This difference may be in part because a greater number of courses are available to students at larger research universities with graduate neuroscience programs.

Course Curriculum

There was a moderate negative correlation between the number of required psychology courses and both neuroscience courses ($r(117)=-0.367$, $p<0.01$) and neuroscience electives ($r(117) = -0.242$, $p<0.01$). This may be due to the fact that not all neuroscience programs have a neuroscience department and therefore do not have 'neuroscience' courses but rather courses on neuroscience content housed in psychology, biology, or chemistry departments. Institutions that have no 'neuroscience' courses are therefore likely to require more psychology, biology and chemistry courses.

Research & Honors

Institutions that required research were weakly negatively associated with institutions that offered honors ($r(117) = -0.242$, $p<0.01$). This correlation suggests that (1) institutions that require research of all students are less likely to offer a research-based honors program and (2) institutions that do not require research may instead offer opportunities as part of an honors program. This distinction may also be dependent on whether the school has an immediate need or resources for undergraduate research assistants. However, there were no significant relationships found between research requirement, honors, and institutional character (size, public/private, research/liberal arts/other).

Honors availability showed no significant relationship with institutions' financial resources in terms of endowment. This finding is surprising given that highly resourced institutions might be expected to be more able to support students' research interests and expenses (e.g., study compensation, funds for equipment, etc.). However, this lack of difference suggests that institutions may be equipped to offer honors regardless of level of available funding. Alternatively, endowment may not be an accurate financial proxy for student research support. Institutions may also limit the number of students able to pursue honors based on available funding and selection criteria (e.g., GPA cutoffs). Future research could examine department-specific funding and honors selection criteria because these factors could clarify the reasons that research-based honors is offered at certain institutions.

Variable	Correlated Variable	n	*r*
Type of University (Research)	Lab Courses	77	0.363**
	Chemistry Courses	117	0.334**
	Physics Courses	117	0.346**
	Math Courses	117	0.319***
	Neuroscience Electives	117	0.281**
	Advanced Courses	115	0.419**
Type of University (Public)	Chemistry Courses	117	0.338**
	Math Courses	117	0.209*
	Advanced Courses	115	0.307***
	Elective Courses	116	0.213*
Research Required	Honors Offered	115	-0.242**
	Biology Courses	117	0.200*
	Advanced Courses	115	0.205*
Number of Faculty	Neuroscience Department	117	0.245**
	Physics Courses	117	0.376***
	Neuroscience Electives	117	0.426**
	Elective Courses	116	0.250*
Total Enrollment	Physics Courses	117	0.495**
	Math Courses	117	0.285*
	Neuroscience Electives	117	0.214**
	Advanced Courses	115	0.413***
	Elective Courses	116	0.269*
University Endowment	Psychology Courses	117	-0.224*
	Graduate Studies Offered	117	0.389**
	Neuroscience Electives	117	0.224*
Endowment per Student	Biology Courses	117	-0.210*
	Faculty	115	0.240**
	Chemistry Courses	117	-0.229*
Psychology Courses	Neuroscience Courses	117	-0.367***
	Neuroscience Department	117	-0.236**

*p<0.05; **p<0.01; ***p<0.001

Table 3. Select correlations (r) among neuroscience major requirements and institutional character among examined variables.

Financial & Department

Endowment per student was analyzed for institutions with values <3 standard deviations from the mean for this variable (n = 116). Number of faculty was positively associated with endowment per student (see Table 3). Interestingly, greater endowment per student was associated with less biology and chemistry course requirements. Additionally, overall endowment was weakly positively correlated with the number of neuroscience elective courses available. These associations suggest that having greater financial resources enables institutions to offer more diverse neuroscience course options to students. Of note, all analyses using endowment per undergraduate student were statistically identical to analyses using endowment per total students (graduate + undergraduate students) (data not shown).

DISCUSSION

Comparing this dataset with past reports on undergraduate neuroscience programs can provide perspective on neuroscience program growth number over time (Ramos et al., 2011). While the 2011 study examined program growth and nomenclature, the current study examined program curriculum and the relationships between school characteristics (i.e., enrollment, liberal arts or research institution), course requirements, and school resources. The previous work also included graduate programs while the current study was limited to undergraduate programs and simply noted whether graduate programs were offered at included institutions.

There is a discrepancy between the institutions included in the 2011 report and the institutions included in the current study. The previous analysis included 104 undergraduate programs titled ‘neuroscience’ and an additional 8 with ‘neuro’ prefixes (e.g., neurobiology, neuropsychology), a total of 111 undergraduate ‘neuroscience’ programs. The current dataset included 118 undergraduate programs and did not include programs with ‘neuro’ prefixes. Database search results in this study returned an additional 19 institutions with nomenclature other than ‘neuroscience’ that were excluded from analyses. Despite similar collection strategies, the current dataset contains 70% of the previously reported programs as well as 40 additional programs (Figure 2). This discrepancy suggests that (a) there is variability of identified programs across databases, (b) there appear to be more undergraduate neuroscience programs than previously reported (combined datasets; 151 unique programs), and (c) databases used in this study did not include information about all undergraduate neuroscience programs. Overall, this dataset represents a majority of the undergraduate neuroscience programs in the U.S.

Characterizing Institutions

Our data indicates that the majority of “neuroscience” majors in terms of institutions are located in smaller and highly resourced institutions (60% institutions have <6000 students). An examination of how this distribution of institutions (i.e., majority = small liberal arts colleges) compares to other young, interdisciplinary science fields (e.g., Environmental Science) and traditional natural science fields (e.g., Biology, Chemistry, Physics) would be an interesting point of comparison. Of note, although less in terms of number of institutions, larger institutions likely account for the majority of students graduating with a neuroscience major; the quantity of neuroscience majors

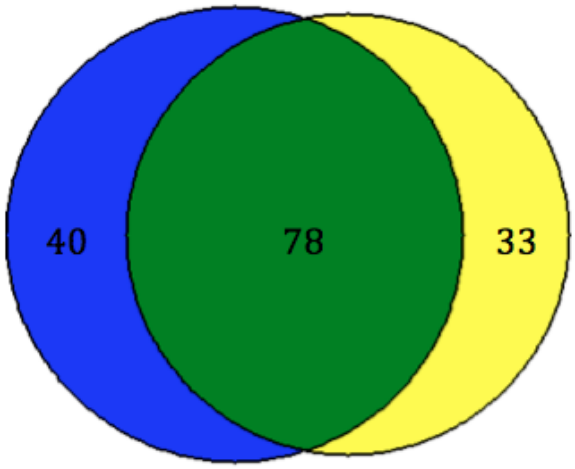

Figure 2. Proportional Venn diagram comparing current dataset versus Ramos (2011) dataset. (Blue = Undergraduate Programs, 2016 dataset, Yellow = Undergraduate Programs, 2008 dataset, Green = Undergraduate Programs in both datasets)

by type of institution remains to be examined. The predominance of liberal arts institutions in our data set is somewhat surprising given that neuroscience is often described as a research-based field. Our data set contains the absolute number of institutions with neuroscience majors and cannot distinguish how many students are involved per institution; larger research institutions likely have more total students involved. Additionally, these institutions may be underrepresented in our dataset given that they have additional neuroscience-related majors by another name (e.g., concentration under Biology or Psychology major). However, as stated previously, less than a third of current undergraduate majors titled "neuroscience" require research as an academic requirement. This discrepancy between the stereotype of neuroscience as a research-based field and undergraduate neuroscience major curriculum requirements for research merits further discussion.

Average Curriculum

Our data show that the current average undergraduate neuroscience curriculum includes: 3 each of chemistry, biology, and laboratory courses, 2-3 neuroscience courses, 1 each of physics and math courses, and 2 psychology courses. Although neuroscience is sometimes described as the intersection of biology and psychology, these data suggest that the average neuroscience curriculum prioritizes natural sciences over social sciences (Figure 3).

In addition to defining this average curriculum, our data collection process reveals trends in curriculum requirements. Interestingly, a subset of institutions also offered specific tracks of specialization within the neuroscience major, emphasizing a cellular/systems perspective, a behavioral/cognitive perspective, or both. This diversity could reflect a broad and evolving definition of neuroscience. For example, courses with a behavioral/cognitive perspective often address aspects of machine learning, coding, and interfacing with computer technology – all of which would utilize computer science knowledge. Accordingly, a small subset of institutions (six in our dataset) required computer science courses, and an additional three offered computer science elective courses. This presence of computer science requirements reflects a larger trend: increasing demand for coding skills (especially in technological fields). According to the National Association for Colleges and Employers (NACE), in 2015, computer science graduates had the highest full-time employment rate within six months of graduation (Bzymek and Collins, 2016). Future studies should aim to isolate predictors of career success and graduate school acceptance to better inform students and universities about relationships between curriculum, skills, and employment.

Our findings regarding the current average undergraduate neuroscience curriculum may be useful in determining future directions for programs when combined with the efforts made by professional organizations invested in proactive curriculum innovation, such as the Faculty for Undergraduate Neuroscience (FUN). For example, FUN has determined what core competencies are rated as most essential by undergraduate neuroscience faculty, and it would be useful to evaluate institutions' curricula based on which skills are most valued (Kerchner et al., 2012). FUN has also developed blueprints for five separate neuroscience programs to be utilized by institutions developing new undergraduate programs. Each blueprint focuses on a different direction for neuroscience education: neuroscience within psychology, neuroscience within biology, neuroscience as a minor, neuroscience as a major, and interdisciplinary neuroscience studies (Wiertelak and Ramirez, 2008). Categorizing existing neuroscience programs into these five areas could inform the general direction of neuroscience education and the distribution of distinct concentrations.

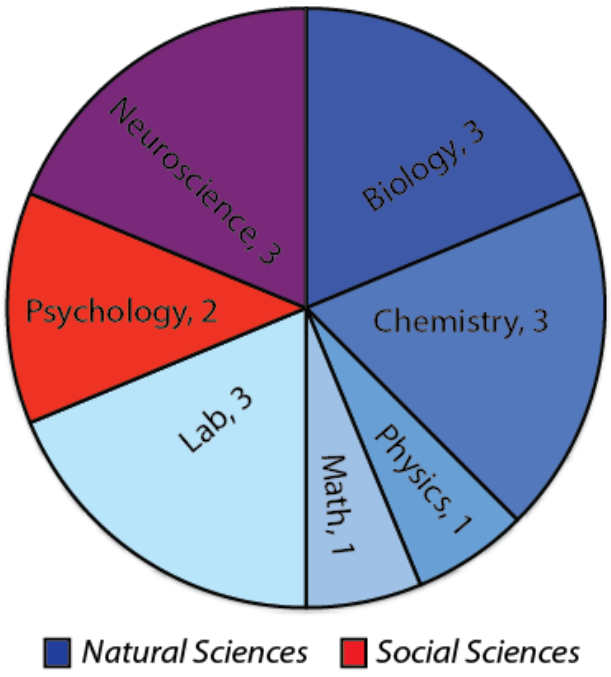

Figure 3. Visual comparison of number of required courses by category in the average neuroscience major.

CONCLUSIONS

This study provides information about the current academic requirements and institutional character of undergraduate neuroscience programs across the United States. Curriculum and course requirement data can inform current students, faculty, and administrators about how neuroscience is defined and what skills are required to pursue research or graduate-level work in the field.

Access to information about current undergraduate neuroscience training is also important for future employers of neuroscience graduates. Employers need to understand curriculum content in order to determine which skills and capacities neuroscience students have for different kinds of work. Every program within the current database required at least one math or statistics class to graduate. This widespread math requirement is likely important to employers given that there is a growing need for large data analyses, data visualizations, and data mining (Gandomi and Haider, 2015). These requirements, in addition to computer science, may make neuroscience students more attractive candidates when entering the workforce following undergraduate studies.

Data from this study indicate similarities between average neuroscience major course requirements and premedical requirements. In fact, the average neuroscience curriculum from this study aligns very closely with the AAMC Pre-Medical requirements (2 Biology, 5 Chemistry, 2 Physics, 1 Psychology, 1 Sociology) (Ramos et al., 2016). Additionally, in April of 2015, the MCAT began including a section entitled, “The Psychological, Social and Biological Foundations of Behavior” (Prichard, 2015). This addition may increase Pre-Medical students’ interest in neuroscience as an interdisciplinary field that directly addresses such content.

While this study is informative, there are a number of caveats related to our data collection strategy. To start, prior to data collection, arbitrary cut-offs were made for certain variables (e.g., introductory vs. advanced courses). These decisions may limit the statistical reliability of any analysis that includes such variables. The 2011 study in this area reported the largest proportion of existing institutions to be labeled ‘neuroscience’ (Ramos et al., 2011). For comparison and for the sake of consistency, only programs labeled ‘neuroscience’ were included in the current study. Nineteen programs returned from database searches with varying nomenclature (e.g., neurobiology, cognitive science, neuroscience and behavior, etc.) were therefore excluded from data collection and analysis (Supplemental Material). Excluding these programs allowed for consistency but limited the total number of programs teaching neuroscience for analyses. In addition, excluding these programs may have skewed our data if certain types of institutions tend towards certain types of nomenclature. Another point of interest is what specific courses are required among the different categories (e.g., which biology/math courses? Introductory vs. advanced?). Our dataset quantified the overall number of required courses per category; additional research in this area could investigate course requirements in greater detail.

An important future goal of neuroscience education research is to identify undergraduate neuroscience training activities that are predictors of graduate school acceptance and career success. Undergraduate programs should ideally structure curriculum in a way that promotes students’ successes in all post-graduate pursuits, including raising awareness of STEM employment trends and job opportunities beyond graduate training. One study in this area suggests that curriculum is unrelated to graduate success and that independent research experience and critical thinking skills are the best predictors of success (Mennerick, 2011). Another study ranks critical and integrative thinking as the most essential competency for students to master, followed closely by basic neuroscience knowledge (Kerchner et al., 2012). Our curricular information should be examined in line with these and other core competencies previously identified for undergraduate neuroscience (Kerchner et al., 2012). Awareness of these predictors is vital in designing and modifying undergraduate neuroscience curriculum to maximize student growth and success. Further, predictors need to be consistently re-examined to reflect the needs of the job market and graduate institutions. This process would be the best way to provide students with both in depth knowledge in neuroscience and marketable skills for professional development.

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Address correspondence to: Dr. Bradley S. Carter, Neuroscience Department, 173 W Lorain St., Oberlin College, Oberlin, OH 44074. Email: bcarter@oberlin.edu