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A First Hand Account of Taking a Regional Anatomy Dissection Course with Analysis of the Best Trajectory for Success

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HNR 499 Research Report

A First Hand Account of Taking a Regional Anatomy Dissection Course with Analysis of the
Best Trajectory for Success

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Introduction

The central focus of this project was to describe my personal experience in Regional Human Anatomy (BMS 460) offered by the Biomedical Sciences Department at Grand Valley State University (GVSU) as well as survey the other anatomy students in order to determine the best trajectory towards success in the course. BMS 460 is unique amongst undergraduate courses. It is a regional anatomy course similar in difficulty to a medical school anatomy course, but also includes full cadaver dissection. There is a lecture and a lab component.

Methods

A questionnaire was distributed to 37 BMS 460 students after the scoring of the second examination. When the survey was conducted, three students had dropped the course. As the investigator, I abstained from completing the survey. I along with the three students who dropped the course were excluded from the statistical analyses. The resulting data was analyzed using two-sample t-Tests and partial correlation to determine if being a teaching assistant (TA) before taking BMS 460 has an affect on student grade.

A blog was created on www.livejournal.com (grofvejo.livejournal.com) and posted in once a week to discuss my personal feelings on how the course was going, comparisons to previous anatomy experiences, as well as levels of stress experienced.

Results

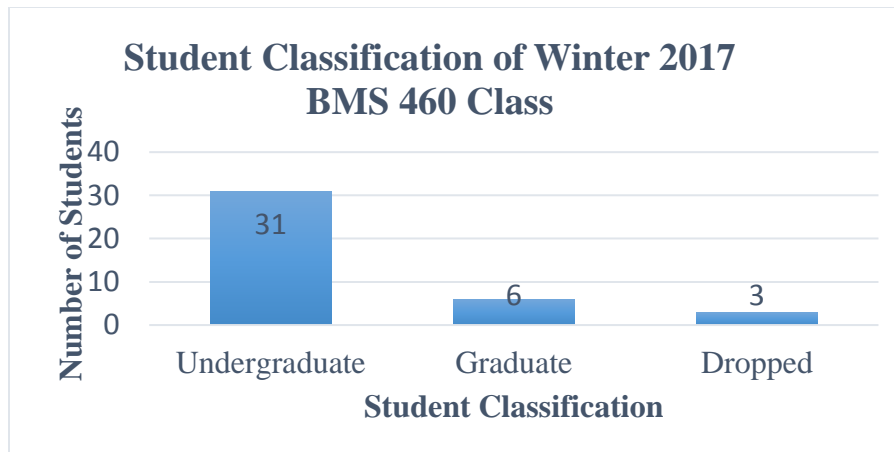


Figure 1. The Regional Human Anatomy Winter 2017 class started with 40 students. The resulting sample size was 36 students.

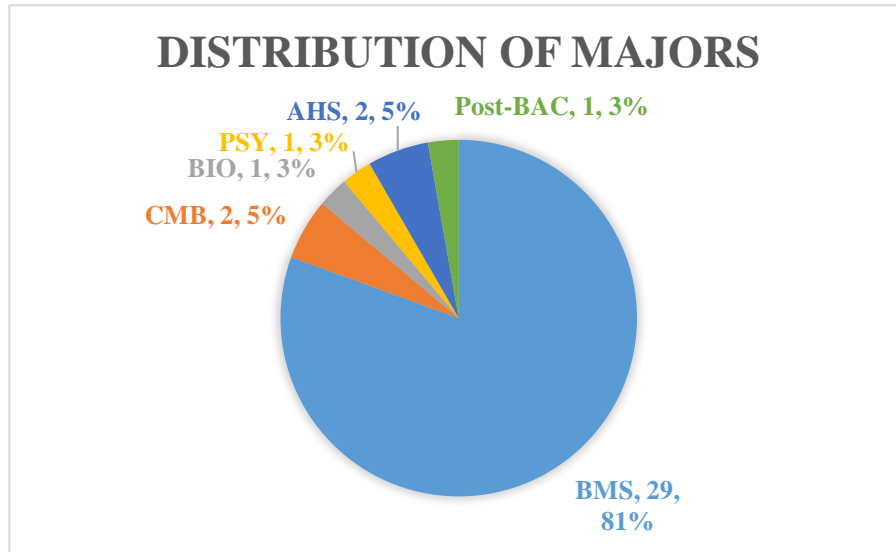


Figure 2.

BMS – Biomedical Sciences
 CMB – Cell & Molecular Biology
 BIO – Biology
 PSY – Psychology
 AHS – Allied Health Sciences
 Post-BAC – Post Bachelor's Degree

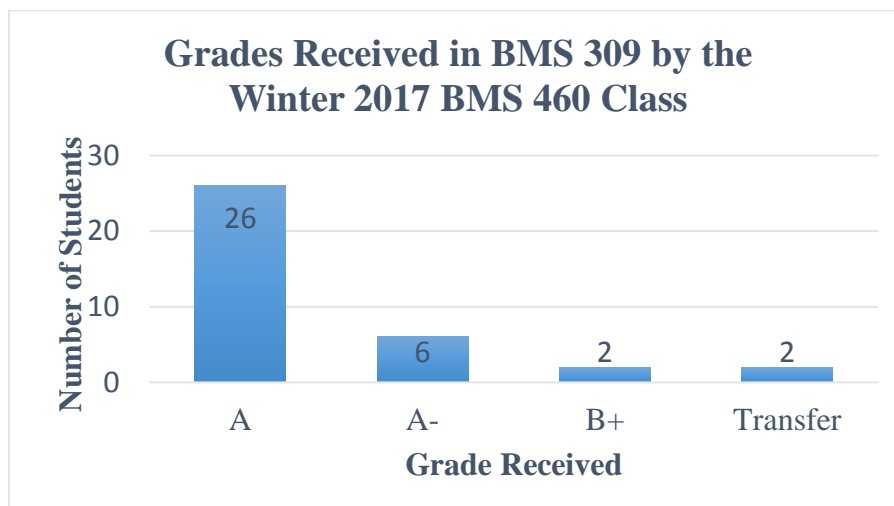


Figure 3.

The majority of students that take BMS 460 received an A in Laboratory in Human Anatomy (BMS 309).

Does being a teacher assistant for BMS 309 improve grades received in BMS 460?

	TA	NON-TA
Mean	87.46666667	84.47619048
Variance	52.83809524	50.36190476
Observations	15	21
Hypothesized Mean Difference	0	
df	30	
t Stat	1.229002825	
P(T<=t) one-tail	0.114312022	
t Critical one-tail	1.697260887	
P(T<=t) two-tail	0.228624045	
t Critical two-tail	2.042272456	

Figure 4.

Two-Sample t-Test ran on BMS 460 lecture grades between Variable 1 (TA) and Variable 2 (NON-TA). T Stat was less than t Critical two-tail. The null hypothesis that the means are the same can not be rejected.

	TA	NON-TA
Mean	89.73333333	85.47619048
Variance	42.78095238	29.36190476
Observations	15	21
Hypothesized Mean Difference	0	
df	30	
t Stat	2.064957012	
P(T<=t) one-tail	0.024325826	
t Critical one-tail	1.703288446	
P(T<=t) two-tail	0.048651651	
t Critical two-tail	2.051830516	

Figure 5.

Two-Sample t-Test ran on BMS 460 lab grades between Variable 1 (TA) and Variable 2 (NON-TA). T Stat was greater than t Critical two-tail, meaning that the null hypothesis that the means are the same can be rejected. T-test displays significance.

Correlations

Control Variables			LectureGrade	TA
Studying & Dissection	LectureGrade	Correlation	1.000	.348
		Significance (2-tailed)	.	.044
		df	0	32
	TA	Correlation	.348	1.000
		Significance (2-tailed)	.044	.
		df	32	0

Figure 6. When controlling for time spent studying and dissecting, there was a slight positive correlation between lecture grade and teacher assisting for BMS 309 with significance.

Correlations

Control Variables			TA	LabGrade
Studying & Dissection	TA	Correlation	1.000	.427
		Significance (2-tailed)	.	.012
		df	0	32
	LabGrade	Correlation	.427	1.000
		Significance (2-tailed)	.012	.
		df	32	0

Figure 7. When controlling for time spent studying and dissecting, there was a greater positive correlation between lab grade and teacher assisting for BMS 309 than between lecture grade and teacher assisting for BMS 309. Results displayed significance.

Does time spent dissecting have a significant impact on BMS 460 lecture and lab grades?

Correlations

Control Variables			Dissection	LectureGrade
Studying	Dissection	Correlation	1.000	.313
		Significance (2-tailed)	.	.067
		df	0	33
	LectureGrade	Correlation	.313	1.000
		Significance (2-tailed)	.067	.
		df	33	0

Figure 8. When controlling for time spent studying, there was no significant correlation between lecture grade and time spent dissecting.

Correlations

Control Variables			LabGrade	Dissection
Studying	LabGrade	Correlation	1.000	.194
		Significance (2-tailed)	.	.265
		df	0	33
	Dissection	Correlation	.194	1.000
		Significance (2-tailed)	.265	.
		df	33	0

Figure 9. When controlling for time spent studying, there was no significant correlation between lab grade and time spent dissecting.

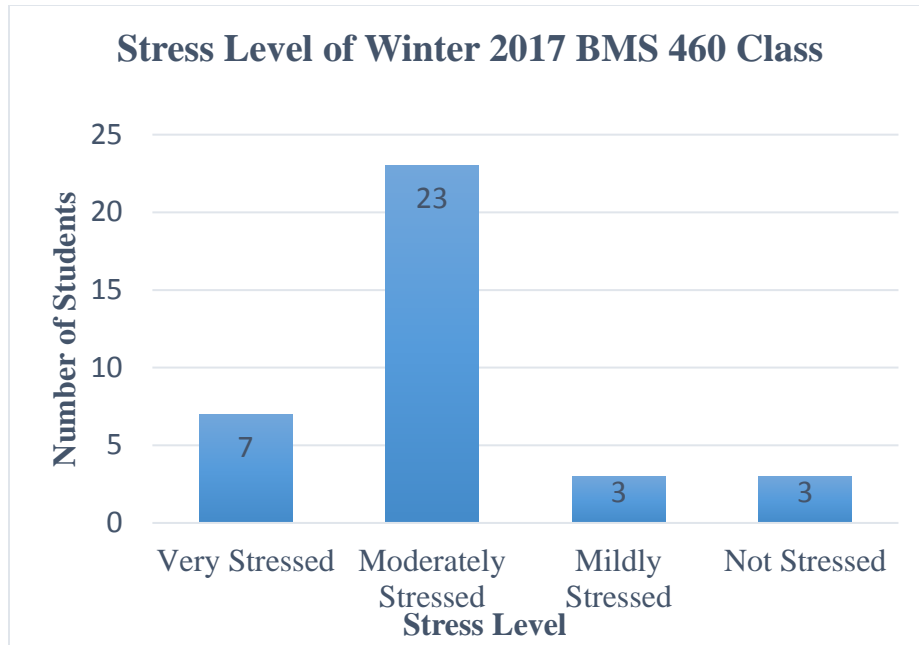


Figure 10. Stress level of Winter 2017 BMS 460 class.

Discussion

The t-test comparing the means of lab grades for TA vs. Non-TA is significant (Figures 4 & 5). Whereas the t-test comparing the means of lecture grades for TA vs. Non-TA is not significant. BMS 309 is focused around lab content, some of which repeats in BMS 460. If a student was a TA they received more exposure to the content and were probably more likely to have a better understanding of it, resulting in a higher lab grade in BMS 460. The content in BMS 460 lecture is new material to all students and being a TA is unlikely to provide an advantage.

Partial correlation analysis held time spent studying and time spent dissecting constant. By holding those variables constant, I was able to determine the impact that being a teaching assistant had on BMS 460 lecture and lab grades. Both analyses were significant (Figures 6 & 7). Teacher assisting gives a student more exposure to cadaver-related material and this would result in the student feeling more comfortable with BMS 460 material and performing better with it than someone who was not a teaching assistant. In another partial correlation analysis, time spent studying was held constant in order to determine if time spent dissecting had an impact on lecture/lab grades. Time spent dissecting had no significant correlation to grade (Figures 8 & 9). It can be proposed that dissection, by itself, is not enough to prepare for the exams. The majority of stress levels were reported at a moderate level (Figure 10).

The sample size was 36 students which is a relatively small sample size. To be more accurate, data from future BMS 460 classes should be collected. Also, survey data was self-reported by each student, allowing for misinterpretation of survey questions and falsely reported information. The data was also collected half way through the semester when there was still two exams left. This additional data may have shown different results.

Are you thinking of taking Regional Human Anatomy? My personal recommendations.

- Only take this class if you demonstrate caution and patience. Both will be crucial when dissecting.
- Prepare to sacrifice social events, holidays, and weekends if there is dissection that needs to be done and there is always dissection that needs to be done.
- If embryology is not something that interests you, consider staying away from this course. If you are going to push through, then plan on taking the time required to understand the abstract concepts.
- Do not get caught up in the competitive side of this course. Everyone here is intelligent and has worked hard up to this point. Being number one is not the highlight of this course. Learning anatomy and studying habits that will help you later in your career and education is the most important.
- There is not one clear path to success in BMS 460. The data shows that most people who take this class are BMS majors, undergraduate students, received an A in BMS 309, and study/dissect a varying number of hours. The data also shows that there is significant relationship between being a teaching assist for BMS 309 and receiving a higher grade in lecture and especially lab.
- Visit grofvejo.livejournal.com to view a personal perspective on the class.