Inquiry, Not Science, as the Source of Secularization in Higher Education[1]

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Abstract (179 words):

The traditional claim in the literature on religion and science is that exposure to science leads to secularity because the claims about the natural world in the two systems are incompatible. More recently, research has narrowed this claim and shown that conflict over knowledge in the U.S. is primarily limited to one religion – conservative Protestantism – and only to a few fact claims. In this paper I test this claim using longitudinal data from matched surveys taken in students' first and fourth year of university. I find no evidence the science is more secularizing than non-science. I then turn to a distinction in university majors long used by sociologists of education – between majors focused on inquiry vs. those focused on applying knowledge – and find that majors focused on inquiry are more likely to secularize than those focused on application. I interpret this to mean that learning to inquire secularizes.

Over ten years ago there emerged a renewed interest in the sociological study of the relationship between religion and science (Evans and Evans 2008; Ecklund 2010; Ecklund and Scheitle 2018; O'Brien and Noy 2015; O'Brien and Noy 2020). The traditional claim in this sub-field is what Evans calls systemic knowledge conflict – that religion and science are conflicting systems of claims or beliefs about the natural world, so that any religious belief (such as believing God created the world) is in conflict with science (believing that the world was created via natural processes). If this were to be the case, all members of at least Western religions would be in conflict with all science, and thus conflict leads to individual secularization. Evans uses historical, interview and public survey data to demonstrate that this traditional perspective is

not correct (Evans 2018).

Instead, he finds what he calls propositional belief conflict between science and primarily one religion – conservative Protestantism. Propositional means that there is a claim that conflicts, but this conflict is not part of a system of conflicting claims. For example, conservative Protestants do not agree with scientists about humans evolving from other primates and about the age of the Earth, but agree with scientists about most claims. Evans went on to claim that to the extent there is conflict between religion and science in contemporary America, the conflict is probably over explicit or implicit moral beliefs expressed in religion and science, such as the moral status of nature (Evans 2018). This paper uses different data than that used by Evans to re-examine his claims about conflict over beliefs, and to go further to see if there is another aspect of knowledge beyond belief that leads to secularization.

Secularization is a multi-dimensional concept (Dobbelaere 1981) that has in recent years been subject to many refined analyses (Taylor 2007). Due to data limitations, but consistent with the religion and science survey literature, I only focus upon the individual secularization dimension (Chaves 1994:757). More specifically, I only have measures of individual religious identity and participation, which may or may not mean that the respondents have more or less religious belief. The reader should interpret my more limited measures in light of their interest in other dimensions of secularization.

The sociology of religion and science has long used the undergraduate educational experience, and college major in particular, as a laboratory to test hypotheses. Of course, higher education may not be the cause of secularization for young adults (Schwadel 2016), so I am examining whether differential rates of secularization among those who do attend college is related to major. Conflict between religion and science is a Christian (Ecklund et al. 2019) and

largely conservative Protestant phenomena (Evans 2018), so my sub-group analysis will only focus upon conservative Protestants. It is also not possible to study religious minorities because there are few in the data.

In this study I first re-examine the traditional belief conflict perspective that majoring in science and engineering results in secularization of religious students from all traditions, while majoring in the social science and humanities does not. I also examine the view that it is the social sciences and humanities that are the engine of secularization due to their advocating moral claims at odds with religion.

This analysis reaffirms Evans' rejection of traditional belief conflict as I find that the natural sciences are equally secularizing as the social sciences and humanities. Existing research would suggest that the one group with possible conflict is conservative Protestantism, but I also analyze an exemplary group of conservative Protestant students and obtain the same results.

In search of how knowledge may still be secularizing beyond beliefs taught, I also test whether it is a major's orientation toward inquiry itself that leads to secularization. For this test I use a categorization of majors not used by sociologists of religion, but often used by sociologists of education – between "pure" and "applied" fields of study. "Pure" fields concern *inquiry* into natural, social or cultural worlds, while "applied" fields use taken for granted knowledge and *apply* it to those worlds. I find that this distinction in majors predicts secularization of all religious undergraduates between their first and fourth years, and is even stronger for conservative Protestants.

STUDIES OF SECULARIZATION AND HIGHER EDUCATION

Specific Content of Undergraduate Majors Leads to Secularization

There have been extensive studies of whether undergraduate education in science leads to

secularization, as would be predicted by the systemic knowledge conflict perspective. For example, Schleifer and his colleagues find that people with degrees in math and science show the lowest rates of religious belief and practice after college (Schleifer, Brauer and Patel 2018). On the other hand, Scheitle finds "no evidence that students in the natural sciences show a greater decrease in religious belief compared to students in other fields" (Scheitle 2011:122). Uecker and Longest also find that "a respondent's field of study is not particularly helpful in predicting religious disaffiliation," and "mere exposure to scientific knowledge, in terms of majoring in biology . . . is usually not sufficient to undermine religious commitment" (Uecker and Longest 2017:155, 145).

More recent studies support the claim that there is no unique science secularization effect, and that both the sciences and the social sciences/humanities have content that is in conflict with religious belief – particularly conservative Protestant belief. For example, Beyerlein writes that one possible reason conservative Protestants avoid college is "the scientific method practiced in state colleges and universities threatens such conservative Protestant world views as a creationist understanding of human origins and a literal interpretation of scripture" (Beyerlein 2004:506-07). But, there is social science and humanities content in conflict as well, which is the result of "the emphasis on emancipation from traditional authority stressed in public institutions of higher learning [which] undercuts a variety of core theological and familial precepts of conservative Protestantism, especially submissiveness of children to God and to their parents" (Beyerlein 2004:507). Similarly, Sherkat claims that students avoid "not only basic science courses, but also courses in social studies and literature that may question conservative Christian values about tolerance, social relations, sexuality and gender roles, and cultural diversity" (Sherkat 2011:1137-38).

A third possibility that follows Evans' claims is that it is the social science/humanities that are the engine of secularization. This possibility is generally supported by how little evidence Evans found for conflict over natural science claims, and the extensive evidence he found for moral conflict. Moral conflict is a better description of the challenge for religious belief in the social sciences and humanities (Evans 2018).

Inquiry Leads to Secularization

In the literature we often see a second theory that is articulated, but not separately tested, but which I will test in this paper. The theory is that for conservative Protestants inquiry itself threatens religious belief because inquiry implies that the religion does not have the answer. This would be the case both in the literature and biology departments, and is consistent with the large literature on right-wing authoritarianism that finds that conservative Protestants are likely to emphasize obeying religious and other authority (Cappellen et al. 2011; Hathcoat and Barnes 2010; Ellison and Sherkat 1993)

Sherkat writes that "according to some activists and adherents in conservative Christian communities, the search for knowledge is often equated with a sinful predisposition toward self-love and pridefulness – and juxtaposed with the fundamentalist ideal of faithful and unquestioning servitude" (Sherkat 2010:3). Another study similarly claims that:

> Genesis, the first book, is perhaps the most explicit in identifying the costs of obtaining knowledge that could either invoke the wrath of God and/or are associated with harsh judgement in some post-temporal realm. . . The costs of man's acquisition of knowledge emerge most clearly from the accounts of man's exit from the Garden of Eden , and the Tower of Babel episode. . . Thus, in the Christian account of creation, man pays a high

cost for acquiring knowledge (Granger and Price 2007:146).

As a final example, a study of religion and wealth assumes conflict with both the scientific and non-scientific parts of the university, writing that conservative Protestant "cultural orientations tend to be at odds with the approaches of nonreligious schools and universities that propagate secular humanist values . . . and promote scientific investigation rather than acceptance of divine truths" (Keister 2008:1240). The perspective of these studies is that secular *inquiry itself* conflicts with direct injunctions against secular inquiry in conservative Protestantism, and this conflict would lead to individual secularization.

Inquiry is examining one's taken for granted assumptions, be it common sense ideas of gravity or gender identity. Learning the skill or value of examining taken for granted assumptions, a student will be slightly more likely to eventually examine their assumptions about the religious beliefs they have been taught, which would lead to secularization.

An opposition to inquiry may also be the contemporary way of expressing the Baconian and Scottish Common Sense realist epistemology that has been the intellectual basis of conservative Protestantism since the 19th century (Garroutte 2003; Marsden 1982; Harrison 2015:154). This 19th century conservative Protestant version of science was opposed to abstraction, theories, and models, but rather trusted in direct observations and categorization (Evans 2018:91). We might then expect conservative Protestantism to be more compatible with the parts of academia that do not concern deep inquiry into the world, but are more based on "common sense," like engineering. This has long been recognized by historians of religion and science. For example, George Marsden observes the historical connection between Scottish Common Sense Realism used by evangelicals and engineering, and notes that there were an unusual number of engineers in the mid 20th century creation science movement that promoted

the conservative Protestant epistemology of science (Marsden 1991:166).

Of the large American religious traditions, conservative Protestantism has the deepest assumptions that are the most distinct from the secular world (Smith 1998; Woodberry and Smith 1998), a conclusion about this tradition also expressed through sociological literatures such as church/sect theory (Iannaccone 1988). Learning to question assumptions (to inquire) in a religion with assumptions more distinct from society would lead to more secularization.

We can also expect a smaller effect to exist in other religious traditions where the assumptions are less distinct than those in the secular world. Any belief in the transcendent is some tension with secular education and some studies suggest this more general effect. For example, Hill writes that "exposure to secular theories and methods in the classroom," which are "associated with liberal learning" itself, can be expected to result in the questioning of religious belief in general (Hill 2011:536). Of course, undergraduates tend to not have sophisticated theological views (Smith 2005), and are typically not deeply reflective or engaged with the deep questions in life (Clydesdale 2007), but a small effect would be consistent with the literature.

THE BIGLAN-BECHER CLASSIFICATION TYPOLOGY

The theory that inquiry leads to secularization is only possible to test if we move beyond the science vs. non-science classification scheme used by sociologists of religion. Only some parts of the university focus on inquiry. According to one summary, "exposure to secular theories and world views which can potentially challenge religious assumptions vary by major and class choice. Majors like science, social science, and humanities are more likely to provide prolonged exposure to secular theories and philosophies than engineering or architecture, for example" (Reimer 2010:395). This quote implicitly references a long standing categorization of disciplines, departments and majors that has not been accounted for by sociologists of religion

and science. What has become known as the Biglan-Becher classification scheme, first formulated by Anthony Biglan in 1973, is probably the most cited organisational system of disciplines used in studies of higher education (Simpson 2017:1521). Biglan developed his typology using quite limited data, but it was later validated using much more extensive datasets (Smart and Elton 1982; Stoecker 1993; Simpson 2017). Simpson reports that the typology has been reconfirmed many times, and even finds that over 40 years later it has strong explanatory power in the UK – despite being based on American academia (Simpson 2017). It has been used to examine a huge range of aspects of student experiences and qualities such as academic conscientiousness, analytical/critical thinking, epistemological assumptions, educational goals, student career preparation, student character development, creativity of thinking, oral and written expression, and much more (Brint, Cantwell and Saxena 2012:3).

The two dimensions in this classification are "hard vs. soft" and "pure vs. applied" (Biglan 1973; Becher 1989)[2] In Biglan's original rendering, the "hard vs. soft" dimension was based on adherence to a Kuhnian paradigm: those subjects for which a body of theory was agreed to by all members of a field were hard, and those for which "content and method . . . tend to be idiosyncratic" were soft. The "pure vs. applied" dimension distinguished fields dedicated to applying knowledge to practical problems in society vs. those that were not (Biglan 1973:202).

The two dimensions combined result in a widely used four cell table: hard and pure (e.g. physics); soft and pure (e.g. history); hard and applied (e.g. engineering); soft and applied (e.g. education). Neumann and colleagues' description is worth quoting at length:

[2] Biglan actually had three dimensions to his typology, but the third, "concern with life systems," has not often been used.

> Hard pure knowledge (of which physics and chemistry are exemplars) is typified as having a cumulative, atomistic structure, concerned with universals, simplification and a quantitative emphasis. . . . Soft pure knowledge (of which history and anthropology offer cases in point) is, in contrast, reiterative, holistic, concerned with particulars and having a qualitative bias. There is no sense of superseded knowledge, as in hard pure fields. . . . Hard applied knowledge (typified by engineering) *derives its underpinnings from hard pure enquiry, is concerned with mastery of the physical environment* and geared towards products and techniques. Soft applied knowledge (such as education and management studies) *in its turn is dependent on soft pure knowledge*, being concerned with the enhancement of professional practice and aiming to yield protocols and procedures. (My emphasis) (Neumann, Parry and Becher 2002:406)

HYPOTHESES

I emphasize the passages in the quote above to show how applied knowledge is dependent upon its associated hard or soft pure knowledge. For example, engineering is dependent upon physics. The hard fields are all about inquiry into (e.g. physics) or manipulation of (e.g. engineering) the natural world. Soft fields concern inquiry into (e.g. sociology) or manipulation of (e.g. social work) the social or cultural worlds. Therefore, the hard/soft dimension is essentially the same as the traditional distinction in the religion and science field: natural sciences and engineering vs. the social sciences and humanities.

The traditional belief conflict thesis described by Evans would predict that someone who believed in <u>any</u> non-scientific claim, such as the existence of God, would be in conflict with research based on science. Therefore, if religious belief in general is incompatible with science:

H1a: The religious students who majored in scientific (hard) disciplines will be more

likely to secularize than those who majored in non-scientific (soft) disciplines. Following Evans' claims about the primacy of moral conflict, it is also possible that there are few conflicts with science, but it is actually the beliefs expressed in the social sciences and humanities that is in conflict with religious teachings. If so:

H1b: The religious students who majored in scientific (hard) disciplines will be less likely to secularize than those who majored in non-scientific (soft) disciplines.

Recent scholarship has suggested that conservative Protestants are the most likely group to be in conflict with science because there are some propositional belief conflicts between conservative Protestantism and science over a few fact claims about the natural world.[3] Note that the literature discussing conservative Protestant views of science is about whites, and African Americans have not been seen as having such conflicts (Evans 2018:95). If white conservative Protestants are in propositional belief conflict with science:

H2a: The secularizing effect of majoring in a scientific (hard) discipline will be larger for white conservative Protestant students than for the other religious students.

The alternative hypothesis of recent scholars is that the content of the social sciences and humanities is also in conflict with white conservative Protestant teaching. If so:

H2b: The secularizing effect of majoring in a scientific (hard) discipline will be smaller for white conservative Protestant students than for the other religious students.

To assess conflict over inquiry itself, instead of the content of the inquiry, I examine the

[3] A more detailed version of this hypothesis would be that secularization is the result of majoring in fields that contain the few conflicting claims – primarily biology. While the data in this paper are fairly fine-grained, they are not fine-grained enough to test this thesis because the boundaries between science majors in terms of content are not very clear. But, see Table 2.

impact of pure vs. applied majors. The "pure" fields assume secular theories and methods in their explanation of the physical, social or cultural worlds and are all centered on inquiry itself – largely independent of any use the knowledge would have. If a student's religion says why something is or should be – again, in the physical, social or cultural worlds – then they will encounter a different logic in a history, anthropology, literature or biology department. In contrast, the applied fields are not concerned with fundamental inquiry or questioning taken for granted assumptions, but about applying given knowledge to everyday life. These fields would not be in conflict with the religious explanations or understandings but essentially neutral toward them. If so:

H3: The religious students who majored in pure disciplines will be more likely to secularize than those who majored in applied disciplines.

In conservative Protestantism there are deeper and more assumptions to violate by inquiry. That is, there are more clear claims about the natural world and the way that the social world should be than would be found in the other traditions in the U.S. large enough to be analyzed with a survey (Smith 1998). If so:

H4: The secularizing effect of majoring in a pure discipline will be larger for white conservative Protestant students than for the other religious students

DATA AND METHODS

I use survey data from U.S. undergraduate college students produced by the Higher Education Research Institute (HERI) at UCLA (Eagan et al. 2016a; Eagan et al. 2016b). The Institute has conducted a survey of college students every year since 1966, with a bias toward repeated questions so that longitudinal claims can be made. I make use of the annual Freshman

Survey that is given face to face to incoming students at many hundreds of institutions.[4] Three and a half years later the respondents to this survey are given a follow up survey, the College Senior Survey, containing many of the same questions, which are matched to the respondents in the Freshman Survey data. I use the 2007 through 2014 senior surveys, with their associated freshman surveys.[5] These data were not collected to evaluate the hypotheses in this paper and the questions have a number of limitations. That said, these data are the only source of detailed data on college major of which I am aware.

Dependent Variables: Secularization Measures

There are two questions about religion that are consistently asked on both surveys. The first is "What is your current religious preference." This has 19 choices, one of which is "none,"

[4] Between 2007 and 2014, the freshman survey was administered to an average of 285 Bachelor's granting institutions each year. In the earlier years, an institution had to have 75% of its incoming class respond to be included, and in later years this was dropped to 65%. While all institutions are solicited, institutions must pay for the research instrument and data access. Institutions use these data to understand trends among their students. Students attending private colleges and universities, as well as those that are more selective, are more likely to be in the data compared to others (Eagan et al. 2016a:321). I control for these parameters in the models. A full list of participating institutions over time can be found at: https://heri.ucla.edu/instruments/ These data are used extensively in the sociology of education.

[5] Attrition cannot be calculated given limitations on data availability, but the neither wave of data are representative of college students in the U.S. As with all panel studies, there is a bias toward the sort of person who can be found for, and responds to, the second survey. The demographic characteristics of the sample are described in Table 1 below.

so the survey can be used to measure the absence of a religious identity. The second is in a battery of questions headed by "for the activities listed below, please indicate how often you engaged in each during the past year; not at all, occasionally, frequently." Among the activities such as "tutored another student" and "studied with other students," one of the questions is "attended a religious service."

Following the approach of Uecker and his colleagues (Uecker, Regnerus and Vaaler 2007:1673), I create two dependent variables. The first is the "lost religious identity" dummy variable that has a value of zero if the student had a religious identity in both the Freshman and Senior surveys. If they had an identity in the freshman but not senior survey, they are coded as "1." Those who did not answer either question, or who did not have a religious identity in the freshman survey, were defined as missing. This excludes the very few who gained a religious identity, as I presume that secularization and sacralization are distinct social processes.

The second dependent variable is the difference in religious attendance reported in the first year and senior surveys. I assigned "not at all," "occasionally" and "frequently" the scores of 1, 2 and 3, respectively, to produce an "attendance change" variable. I subtracted the first year score from the senior score for those who said they attended occasionally or frequently in the Freshman survey. Those who reported no attendance on the Freshman Survey were defined as missing. The 3% who increased attendance over the four years were excluded from the analysis to focus on secularization not sacralization. Of those who remained in the sample, 44.8% had a constant level of attendance between their freshman and senior years; 45.9% dropped one point in the scale and 9.3% dropped two points. To make analyses more interpretable I dichotomized this variable so that those who did not change are assigned a zero and those who decreased attendance a 1. (Ordered logistic models using all three categories of the dependent variable

produce the same substantive results.)

Undergraduate Major

The critical independent variable is the undergraduate major of the student, as reported in their senior year. The survey has 86 choices, which I used to create two dummy variables representing the Biglan-Becher categories. Majors were sorted by comparing the survey choices with the articles cited above that use these categories. One dummy variable is "scientific" with the reference group being "non-scientific" (the hard/soft distinction). The other is "applied," with the reference group being "pure." 26% of the respondents had science majors, and 74% non-science. 39% had applied majors, and 61% pure. For the descriptive statistics by major, majors with few respondents were combined with related larger ones. Cases with "other major" were excluded as un-codable. There is no way to determine if respondents switched majors, double majored or minored in a field. The classifications by major are reported in Table 2.

Religious Identity Measures

The hypotheses make distinct claims about white conservative Protestants. One limitation of these data is that many of the 19 choices of religious identity are not precise enough to distinguish between mainline and conservative Protestants, as is done using surveys like the General Social Survey (Smith et al. 2010).[6] For example, choices include "Lutheran," "Presbyterian" and "Methodist," without a means to distinguish between the mainline and conservative denominations in those broad families. However, there are two Protestant identities

[6] The categories in the HERI surveys are: Buddhist, Congregational (UCC), Eastern Orthodox, Episcopal, Jewish, Latter Day Saints (Mormon), Lutheran, Methodist, Muslim, Presbyterian, Quaker (Society of Friends), Roman Catholic, Seventh Day Adventist, Unitarian Universalist, Other Christian (Protestant), and Other Religion.

with fairly unambiguous meaning: “Baptist” and “Seventh Day Adventist.” I therefore use the white Adventist and Baptists as an example of conservative Protestant students.

I justify using these two groups as exemplar white conservative Protestants as follows. The dominant method of dividing American survey respondents between mainline and conservative Protestantism uses the precise denominational titles (Steensland et al. 2000). At last count the cumulative GSS had cataloged approximately 200 distinct denominations among its respondents (Smith et al. 2010). In these classifications, Seventh Day Adventists are unambiguously in the conservative Protestant category, although there are few Adventists in the HERI survey. There are dozens of Baptist denominations in the U.S., and one of the larger ones is mainline. African American Baptists, who largely have their own denominations, are considered a separate religious group (Steensland et al. 2000), and have largely not been involved in any religion and science debates.

The methodological standard in the sociology of religion is to separate out African American Baptists by both their specific denominations (e.g. the National Baptist Convention), and to use a race variable to identify the African American Baptists who identify with a largely white denomination (e.g. the Southern Baptist Convention). This is justified on the grounds that African Americans in largely white denominations are segregated by congregation. Therefore, I separate the white Adventists and Baptists from the black Adventists and Baptists by using the race variable.

I cannot distinguish the mainline Baptists (American Baptist Churches (USA)) from the conservative Protestant Baptists, but an analysis of the 2000-2010 GSS (Smith et al. 2010) shows that of the white respondents who identify as “Baptist,” 2.4% of these are classified as mainline by the dominant classification scheme and 97.6% as conservative Protestant.

Therefore, the white Baptists and the few Adventist students can be used as an exemplar of conservative Protestantism.

The traditional modeling approach would be to compare this group to all other respondents. However, if I did so, the reference group would contain many conservative Protestants who are not Baptists. To facilitate the interpretation of this white conservative Protestant exemplar group I construct a reference group that does not have any members of conservative Protestant denominations in it. The reference group includes those who are clearly liberal Protestant (Congregational (UCC), Episcopal, Quaker, Unitarian Universalist), combined with Roman Catholic, Eastern Orthodox and non-Christian traditions (Buddhist, Jewish, "Other religion"). I therefore exclude from the analyses the Protestants who are not clearly conservative or mainline (e.g. Methodists). As you would expect from American religious demography, 79% of this reference group are Roman Catholics. The reader should be mindful of from whom the conservative Protestants are different in this exemplar analysis. I also ran analyses where the conservative Protestants are compared to all others, which is a more traditional modeling strategy, which presumably has much more measurement error since most Protestants cannot be distinguished. These latter comparisons are reported in a footnote.

Controls

There are two types of controls. The first is for selection effects. Of course, the largest determinant of secularization among the young may be what sort of student goes to college at all – it may be that those who are most prone to secularization are those who attend college (Schwadel 2016:760). However, my research question is one step more specific: among those who do attend college, and who may be more prone to secularization, does major matter?

There may also be individual characteristics present upon entering university that are

associated with both the selection of a major and propensity to secularize. While these selection effects cannot be ruled out without experimenting on college students, there are a number of variables that can control for critical factors. I control for gender as well as the freshman respondent's best estimate of their parents' total income. I include dummy variables for African American, Asian and white/caucasian. A combination of American Indian, Mexican American, Native Hawaiian, Puerto Rican, other Latino and "other" are the reference group. I also used a dummy variable produced by HERI which indicates the student is a first generation college student. I used a 1 to 8 continuous variable created by HERI that measures the freshman respondent's average grade in high school, with D being 1 and A or A+ being 8.

Given the growing relationship between religiosity and American politics, I also controlled for the political views of the respondent on the freshman survey, which was measured on a 5 point scale from "far right" to "far left." Students also enter college with different aspirations, which may be associated with both major and religiosity. I therefore used a series of questions that began with "please indicate the importance to you personally of:" and the four possible responses ranged from "not important" to "essential." I included in the models: "becoming a community leader," "becoming accomplished in one of the performing arts," "becoming an authority in my field," "becoming involved in programs to clean up the environment," "becoming successful in a business of my own," "becoming very well off financially," "creating artistic work," "develop a meaningful philosophy of life," "helping others who are in difficulty," "helping to promote racial understanding," "improving my understanding of other countries and cultures," "influencing social values," "influencing the political structure," "keeping up to date with political affairs," "making a theoretical contribution to science," "obtaining recognition from my colleagues for contributions to my special field," "participating

in a community action program," and "writing original works (poems, novels, etc.)."

The second type of control is for experiences during their undergraduate years that could be related to both major and religiosity. I control for a number of college experiences that would be socially disruptive and displace a student from their religious community. A series of yes/no questions in the senior survey begin with "since entering this college, have you:" I included "transferred from a four year school," and "transferred from a community college." An additional measure of social disruption of religious ties was the question "how many miles is this college from your permanent home?" This had 6 response categories with "1" being 5 or less," and "6" being "over 500."

I also controlled for college activities that would be time consuming, and thus interfere with religious activities, but which may well also be correlated with major. In the yes/no questions above I also included questions students were asked of "study abroad," "student government," and "intercollegiate sports." Additionally, in the senior survey respondents were asked a series of questions prefaced by "during the past year, how much time did you spend during a typical week," with 8 response categories where "1" represents "none," and "8" represents "over 20." I included in the models "time in class" "studying/homework," "commuting," "working (for pay) off campus," and "working (for pay) on campus."

A number of college experiences are summarized by institutional context. The existing literature would predict that different types of schools (public/private, religious/non-religious, university/four year; selectivity) would differently impact secularization (Bryant, Choi and Yasuno 2003; Hill 2009; Schwadel 2016; Thomson and Davignon 2017). Moreover, the sample is not a random sample of all undergraduates in the U.S., but rather schools select into it, and some types of schools are better represented than others. Instead of weighting the data by these

variables, I will control for them by using dummy variables. I created a dummy variable for university (vs. four year college) and private (vs. public). I created a dummy for a Catholic school, and another for other religious school (vs. non-religious). I also used the continuous measure of institutional selectivity that comes with the HERI data, which is defined as the combined median SAT verbal and math scores or ACT composite score of the entering class. I estimate logistic regression models. To account for respondents not being independent within school, I use the clustered sandwich estimator in Stata.

FINDINGS

Table 1 shows the descriptive statistics. A few rows are particularly relevant. First, 11.3% of the students who had a religious identity in year one did not have one in year four, and 55.2% of those who attended services in year 1 declined in attendance by year 4. This is consistent with what is known about religion in college (Hill 2009; Uecker and Longest 2017).

To further contextualize these data we can look at which first year students selected which major (not further shown). Of those who ended up as applied majors, 13.5% did not attend services in year 1, compared to 18.3% of pure majors. Similarly, 11.5% of applied did not have a religious identity in year 1, compared to 19.2% of pure majors. That is, there is a slight propensity for the religious to select applied majors. The year 1 religious are equally distributed between science and non-science majors (attend in year 1 was 16.6 in science, 16.3 in non-science; those with no identity 16.7 in science, 15.8 in non-science). While these parameters are important for understanding these data, this paper is concerned with whether those who *did* enter a major *changed* their religiosity by year 4.

Table 1 About Here

Table 2 is also descriptive, and shows the percent of students by major who lose their religious identity and decrease their attendance at religious services. Majors are listed in order of the percent losing their identity and the final two columns show the classification by science/non-science and pure/applied. The most secularizing majors are women's studies and anthropology, and the least are law and elementary education.

Table 2 About Here

The first column in Table 3 shows the model for predicting whether a student who has a religious identity in year 1 will not have a religious identity in year 4 using only the Biglan-Becher variables. Starting with the science/non-science dummy variable, we see no effect.[7] In column 2 I add the personal characteristic variables and the undergraduate experience variables. While I lack the space to describe the results in detail, the control variables show expected effects, such as women and political conservatives being less likely to secularize.

Before turning to the remaining columns in Table 3, I turn to Table 4. Table 4 shows models where deceasing attendance is the dependent variable, and the findings represented in the first two columns are very consistent with those in Table 3.[8] In sum the first two columns in Tables 3 and 4 show that H1a is not supported. Religious students who majored in science

[7] Running separate models for each of the two Biglan-Becher variables produces the same results. With only Science major in the model, the coefficient is -.0077 (n.s). With only Applied major in the model, the coefficient is -.5492 ($p<.000$).

disciplines are not more likely to secularize than those who majored in the non-scientific disciplines. Nor is H1b supported. Religious students majoring in science majors are not, compared to those in the non-science majors, less likely to secularize.

Tables 3 and 4 About Here

Those are tests of the most expansive theory, which is that all religious students will have this effect, and the findings above are consistent with recent research that does not see science leading to secularization (Evans 2018; Bolger, Thomson and Ecklund 2019). But, existing research suggests that if there is any such conflict between religion and science it is primarily found among conservative Protestants. Taking advantage of the large number of cases, I exclude the unclassifiable Protestants from subsequent analyses. The white Protestant variable in the third column in each table shows that the conservative Protestants are less likely to secularize than are the non-Protestant yet religious comparison group. That is, independent of major, the religious identity and practice of conservative Protestants is more resilient in college than for students of other faiths.

The final column in Tables 3 and 4 contains an interaction term between conservative Protestant and science major, as well as conservative Protestant and applied major. The first of those interaction terms (conservative Protestant x Science) is not significant in either Table, suggesting no difference between conservative Protestants and non-Protestant religious students

[8] Separate models produce the same results. With only Science major in the model, the coefficient is -.0235 (n.s). With only Applied major in the model, the coefficient is -.1726 ($p<.000$).

in the (lack of) a secularizing effect of science or non-science classes. Therefore, H2a and H2b are not supported.[9]

I turn to the difference between pure and applied majors and whether it is inquiry itself – independent of being about the natural, social or cultural worlds – that leads to secularization. Returning to the pure/applied dummy variable in the first two columns in Tables 3 and 4, we see that pure majors are more likely to result in secularization than are applied majors. This is a fairly large effect. Using the margins command in Stata, the predicted probability of a student in a pure major losing their religious identity is .110, and in an applied field it is .079. That is, roughly 11% of pure students secularize but only 8% of applied students. The predicted probability of a student in a pure major decreasing religious attendance is .570, and in an applied field it is .528.

While the effect attenuates somewhat in model 2, the effect remains statistically significant. H3 is supported. The pure fields like physics, biology, history, English and anthropology – dependent upon inquiry itself – result in a greater amount of secularization than do the applied fields like engineering, teaching and business. As expected, the additional variables cut the size of the effect. With all other variables held at the mean we see that the predicted probability of losing a religious identity in pure fields is .110, and in applied fields it

[9] I also ran a model where the reference group for the white conservative Protestants were all of the other religious respondents in the sample. As noted above, this has the disadvantage of having some conservative Protestants in the reference group, resulting in lost precision. In that model the white Protestant/science interaction term has a coefficient of .0941 (ns.) for the identity model, and .0941 (n.s.) for the attendance model. It is a coincidence that the two coefficients round to the same four digit number.

is .079. The predicted probability for decreasing religious attendance in pure fields is .567 and for applied fields it is .533.

A number of the control variables can loosely be interpreted as indicating that an orientation to inquiry leads to secularization and an orientation to applied work does not. While the actual questions are not connected to the distinction too closely, they are suggestive that the general inquiry effect exists. The aspirations centering on working in a community, akin to an applied major, are associated with less secularization. For both measures of secularization, aspirations to be a community leader, be in the performing arts, helping others, and participating in a community action program are associated with less secularization. It is not only that community focus is associated with less secularization, but aspirations to inquiry-like activity are often associated with more secularization. Developing a philosophy of life, understanding other cultures, making a contribution to science, and writing a novel or poetry are associated with secularization. So is creating artistic works, which serves as a nice contrast with performing art – creating is associated with secularization but performing art created by others is not. This exemplifies the pure/applied distinction.

The final hypothesis is H4: whether the impact of inquiry is stronger for conservative Protestants. The interaction term between conservative Protestant and applied major in Model 4 in Tables 3 and 4 tests the hypothesis that there is a stronger effect for conservative Protestants. The interaction effect is significant and in the predicted direction in the religious identity and

attendance models.[10] This offers support for there being a greater conflict with pure disciplines for the conservative Protestant students. The effect is small. The predicted probability of a conservative Protestant losing their religious identity in a pure field is .077, and in an applied field it is .055. The predicted probability of a conservative Protestant decreasing religious attendance in a pure field is .429, and in an applied field it is .411.

The final column in Tables 3 and 4 also report X-standardized coefficients (Long and Freese 2014:180-81) in brackets to compare the effect size across different measurement scales of the independent variables. Examination of these coefficients can suggest future research for scholars interested in secularization during college. Prominent variables include political orientation, with conservatives less likely to secularize; religious affiliation of the school, with Catholic and other religious schools less likely to result in secularization; and women being less likely to secularize. Political orientation, independent of religious tradition, seems a particularly fruitful area for further inquiry.

DISCUSSION AND CONCLUSION

There are a number of limitations to this study. First, it is possible that people with different propensities toward secularization select certain majors, and if so, it is not the inquiry embedded in a major that leads to secularization. I controlled for as many possible measures of that underlying propensity, but without experimental data I cannot ultimately determine that an individual's secularization is the result of their experience in the classes of their major. A second

[10] I also ran a model where the reference group for the white conservative Protestants were all of the other religious respondents in the sample. In that model the white Protestant/Applied interaction term has a coefficient of -.3790 (p=011) for the identity model, and -.132 (p=.06) for the attendance model.

limitation is that by the standards of the sociology of religion the measure of conservative Protestantism in this study is imprecise, and the comparison with the least measurement error is with not all other respondents but with the non-Protestants. It is then truly an exemplar comparison. A third limitation is that the connection between measurement and concept is admittedly diffuse, and effects are small. I cannot eliminate the possibility that the different majors have effects beyond orientation to inquiry. A fourth limitation is that this is not a random sample of students in the U.S., but is only from the institutions that have agreed to be part of the HERI studies. Given that schools pay to participate in the survey, there are likely to be biases in the demographics of the respondents.

It is also important to remember that studies of college students offer only one view of the social phenomena of the relationship between religion and science. Undergraduates are unusual compared to the general population with a very limited age range, stage in the life course, socioeconomic class and much more. Research on undergraduates is simply suggestive for the larger debate.

The traditional literature on the secularizing effect of the natural sciences assumes that any religious belief is incompatible with science, and therefore all science will be secularizing for all religious students. More recent literature limits these claims to conservative Protestants, and identifies a few fact claims that may result in conflict between natural science and conservative Protestantism. Scholars have also posited some specific content in social science and humanities – such as views on gender roles – that may be in conflict with conservative Protestantism. I find no effect of the distinction between science and non-science disciplines for religious students in general or conservative Protestants in particular. On the other hand, pure fields lead to more secularization than do applied fields, particularly for white conservative

Protestants. This suggests that when science, social science or the humanities secularizes, it is the result of inquiry itself, not the content of that inquiry. This new way of looking at the impact of science explains the typical outlier in such studies – engineering – a field that has many of the trappings of physics, but with a much more religious constituency.

The field of the sociology of religion and science has been moving away from the idea of a conflict over claims, and this study reinforces that direction. Sociologists should assume the biology department secularizes, but not because modern biological claims conflict with those in the book of Genesis. Rather, the biology department teaches to inquire about your assumptions, and such inquiry may lead to secularization. Moreover, the established contrast to conflict over knowledge is conflict over morals (Evans 2018), but the findings in this paper suggest a more subtle version of knowledge is still important. The field should consider that neither religion nor science is a compendium of beliefs about nature or morality, but is rather an orientation and series of practices – like inquiry. Knowledge may still be a source for conflict, but about how knowledge is generated and not the knowledge that results from that inquiry.

This research suggests a number of directions for future study. First, future studies should have a much tighter focus on the concept of inquiry that is at best abstractly measured here. Studies of exactly what inquiry is in the lives of ordinary religious people and how it does or does not impact religiosity will be particularly useful, as will examination of whether science is particularly focused on inquiry. Second, while this paper has focused on the relationship between inquiry and secularization of college students, we can see from the models that there are many determinants of such secularization that should be investigated. Most notably, independent of inquiry or religious tradition, political orientation has a strong effect on secularization.

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Table 1: Descriptive Statistics, HERI Undergraduate Survey Data

Variable	N	Mean	Low/High
Lost Religious Identity	84,254	.113	0/1
Decrease Attend	84,537	.552	0/1
White Protestant	84,254	.057	0/1
Science Major	105,781	.272	0/1
Applied	105,781	.411	0/1
Female	110,682	1.633	1/2
White	104,285	1.838	1/2
African American	104,285	1.042	1/2
Asian American	104,285	1.070	1/2
Parent Income	98,149	17.442	1/25
First Gen Student	109,695	1.123	1/2
HS GPA	109,911	6.835	1/8
Political Views	106,217	3.047	1/5
Goal: Community Leader	105,916	2.270	1/4
Goal: Performing Arts	106,637	1.611	1/4
Goal: Authority in a Field	106,520	2.659	1/4
Goal: Clean Environment	106,032	1.996	1/4
Goal: Successful in Business	106,105	2.144	1/4
Goal: Being Well Off Financially	106,499	2.910	1/4
Goal: Creating Artistic Works	106,153	1.545	1/4
Goal: Develop Philos of Life	106,048	2.522	1/4
Goal: Helping Others	106,354	2.954	1/4
Goal: Promote Racial Understanding	105,908	2.203	1/4
Goal: Understand Other Cultures	105,780	2.675	1/4
Goal: Influence Social Values	106,212	2.391	1/4
Goal: Influence Political Structure	106,210	1.862	1/4

Goal: Keep Up to Date Politics	105,998		2.335	1/4	
Goal: Make Contribution to Science	106,086		1.696	1/4	
Goal: Recognition from Colleagues	106,383		2.556	1/4	
Goal: Participate Community Action 105,841		2.166	1/4		
Goal: Write Novel/Poetry		106,208		1.584	1/4

Table 1: Continued . . .

Study Abroad			107,981	
	1.371	1/2		
Student Government		107,893		1.117
	1/2			
Intercollegiate Athletics	108,294		1.213	1/2
Transfer from Four Year College	108,276	1.013	1/2	
Transfer from Two Year College	108,238	1.014	1/2	
Distance Home		108,929		3.459
	1/5			
Hours Per Week: Attend Class	106,976	5.939	1/8	
Hours Per Week: Commute	106,802		2.101	1/8
Hours Per Week: Study	107,155		5.522	1/8
Hours Per Week: Work off Campus	106,839	2.841	1/8	
Hours Per Week: Work on Campus	106,917	3.163	1/8	
Year				
	111,169		17.337	14/21
Selectivity			108,388	
	1185	390/1500		
University			111,169	
	.229	0/1		
Catholic College		111,169		.260
	0/1			
Other Religious College	111,169		.224	0/1
Private School			111,169	
	1.876	1/2		

Table 2: Secularization Measures by Major, HERI Data

Major	Attend	Non-Sci	% Lost Science/ Applied	Pure/ N	% Decr Identity
Women's Studies	140	.27	.76	NS	P
Anthropology	953	.23	.60	NS	P
Physics	832	.21	.60	S	P
Philosophy	1002	.20	.55	NS	P
Earth Science	435	.20	.69	S	P
Arts, fine, and applied	3731	.19	.65	NS	P
Microbiology or Bacteriology	131	.18	.66	S	P
Computer Science	1049	.18	.61	S	A
Other Technical	158	.17	.63	S	A
Environmental Science	1143	.17	.66	S	P
Ethnic Studies	179	.17	.50	NS	P
Theater or Drama	1330	.16	.61	NS	P
Marine (Life) Science	119	.16	.66	S	P
Drafting or Design	241	.16	.67	NS	A
Zoology	123	.16	.67	S	P
Other Engineering	725	.16	.61	S	A
Sociology	2448	.16	.59	NS	P
Geography	184	.16	.68	NS	P
Electrical or Electronic Eng	603	.15	.61	S	A
Other Arts and Humanities	2740	.15	.56	NS	P
Data Process/Computer Prog	194	.15	.61	S	A
English (language and literature)	5102	.15	.59	NS	P
Industrial Engineering	134	.14	.62	S	A
Language and Lit (except Engl)	2030	.14	.55	NS	P
Other Social Science	1461	.14	.54	NS	P
Political Science (gov, int rel)	5808	.13	.59	NS	P
Computer Engineering	395	.13	.64	S	A
Economics	3466	.13	.64	NS	P
Other Physical Science	236	.13	.57	S	P
Architecture or Urban Planning	359	.13	.58	NS	A
Psychology	8277	.13	.59	NS	P
History	3842	.12	.56	NS	P
Aeronautical or Astronautical Eng	261	.12	.50	S	A
Other Biological Science	1469	.12	.60	S	P

Table 2, Continued

Major	Attend	Non-Sci	% Lost Science/ Applied	Pure/ N	% Decr Identity
Journalism	951	.12	.54	NS	A
Music	1373	.12	.44	NS	P
Mathematics	2206	.12	.53	S	P
Biology (general)	7096	.12	.54	S	P
Biochemistry of Biophysics	1255	.11	.56	S	P
International Business	848	.11	.58	NS	A
Chemistry	1650	.11	.58	S	P
Chemical Engineering	590	.11	.54	S	A
Mechanical Engineering	1372	.11	.54	S	A
Communications	4133	.10	.54	NS	P
Civil Engineering	795	.10	.57	S	A
Health Tech (med, dental, lab)	96	.10	.62	S	A
Other Business	1053	.10	.60	NS	A
Law Enforcement	410	.10	.58	NS	A
Music or Art Education	562	.09	.43	NS	A
Other Professional	639	.09	.55	NS	A
Speech	200	.09	.57	NS	A
Social Work	841	.08	.48	NS	A
Agriculture	133	.08	.42	S	A
Business Admin. (general)	3011	.08	.57	NS	A
Finance	3233	.08	.57	NS	A
Marketing	3171	.08	.56	NS	A
Secondary Education	822	.08	.43	NS	A
Therapy (occup, phys, speech)	723	.08	.55	S	A
Pharmacy	319	.08	.60	S	A
Management	2162	.07	.57	NS	A
Medicine, Dentistry, Vet	629	.07	.43	S	A
Accounting	4110	.07	.52	NS	A
Kinesiology	823	.07	.46	S	A
Other Education	449	.06	.47	NS	A
Physical Education or Recr	495	.06	.49	NS	A
Special Education	333	.05	.41	NS	A
Nursing	3095	.05	.46	S	A
Theology or Religion	1289	.05	.21	NS	P
Elementary Education	3480	.04	.42	NS	A
Law	134	.03	.62	NS	A

Table 3: Regression Coefficients

VARIABLES	(1) Lost Identity	(2) Lost Identity	(3) Lost Identity	(4) Lost Identity
Science Major	-0.0097	-0.0084	-0.00121	-0.00887 [-.004]
	(0.0376)	(0.0344)	(0.0429)	(0.0455)
Applied Major	-0.5490***	-0.3650***	-0.376***	-0.357 [-.177]***
	(0.0427)	(0.0328)	(0.0395)	(0.0394)
Year		0.0661***	0.0675***	0.0674 [.146]***
		(0.0075)	(0.00820)	(0.00819)
Selectivity		0.0009***	0.000697***	0.00069 [.090]***
		(0.0002)	(0.000205)	(0.000204)
Female		-0.3620***	-0.385***	-0.385 [-.187]***
		(0.0323)	(0.0337)	(0.0336)
White		0.2660***	0.245***	0.246 [.090]***
		(0.0523)	(0.0606)	(0.0605)
African American		-0.4030***	-0.526***	-0.525 [-.097]***
		(0.0879)	(0.115)	(0.115)
Asian American		0.0543	0.0799	0.0797 [.019]
		(0.0936)	(0.108)	(0.108)
Parental Income		-0.0127***	-0.0134***	-0.0134 [-.074]***
		(0.0026)	(0.00335)	(0.00335)
First Gen Student		0.0869	0.0428	0.0419 [.013]
		(0.0478)	(0.0621)	(0.0622)
HS GPA		-0.0393***	-0.0445**	-0.0443 [-.051]**
		(0.0119)	(0.0158)	(0.0158)
Goal: Community Leader		-0.1430***	-0.144***	-0.144 [-.131]***
		(0.0177)	(0.0220)	(0.0220)
Goal: Performing Arts		-0.0568***	-0.0459*	-0.0462 [-.041]*
		(0.0167)	(0.0210)	(0.0210)
Goal: Authority in a Field		0.0275	0.0313	0.0309 [.026]
		(0.0180)	(0.0249)	(0.0250)
Goal: Clean Environment		0.1140***	0.102***	0.101 [.084]***
		(0.0256)	(0.0301)	(0.0301)
Goal: Successful in Business		-0.0408*	-0.0433	-0.0436 [-.045]
		(0.0202)	(0.0248)	(0.0247)
Goal: Being Well Off Financially		0.0210	-0.0159	-0.0164 [-.014]
		(0.0177)	(0.0226)	(0.0226)
Goal: Creating Artistic Works		0.0779***	0.0944***	0.0943 [.077]***
		(0.0232)	(0.0253)	(0.0253)
Goal: Develop Philos Of Life		0.0791***	0.0972***	0.0973 [.096]***
		(0.0131)	(0.0181)	(0.0181)
Goal: Helping Others		-0.1510***	-0.112***	-0.112 [-.087]***
		(0.0208)	(0.0260)	(0.0259)

Goal: Promote Racial Understanding	0.0373 (0.0199)	0.0122 (0.0217)	0.0120 [.010] (0.0217)
Goal: Understand Other Cultures	0.0912*** (0.0201)	0.0981*** (0.0242)	0.0980 [.087]*** (0.0242)
Goal: Influence Social Values	-0.1400*** (0.0213)	-0.129*** (0.0268)	-0.128 [-.109]*** (0.0268)
Goal: Influence Political Structure	0.0405 (0.0228)	0.0629* (0.0258)	0.0631 [.055]* (0.0258)
Goal: Keep Up to Date On Politics	0.0355 (0.0203)	0.0289 (0.0231)	0.0289 [.027] (0.0231)
Goal: Make Contribution To Science	0.0707*** (0.0180)	0.0600** (0.0228)	0.0604 [.053]** (0.0228)
Goal: Recognition from Colleagues in Field	0.0477* (0.0195)	0.0339 (0.0249)	0.0336 [.028] (0.0249)
Goal: Participate Comm. Action Program	-0.1440*** (0.0213)	-0.147*** (0.0267)	-0.146 [-.125]*** (0.0267)
Goal: Write Novel/Poetry	0.1090*** (0.0180)	0.122*** (0.0218)	0.122 [.104]*** (0.0217)
Political Views	0.4930*** (0.0216)	0.462*** (0.0309)	0.463 [.381]*** (0.0308)
University	-0.2410** (0.0780)	-0.234*** (0.0688)	-0.236 [-.105]*** (0.0689)
Catholic School	-0.3420*** (0.0676)	-0.369*** (0.0651)	-0.371 [-.178]*** (0.0648)
Other Religious School	-0.5280*** (0.0910)	-0.260** (0.0952)	-0.261 [-.093]** (0.0947)
Private School	-0.2430** (0.0746)	-0.294*** (0.0744)	-0.295 [-.085]*** (0.0744)
Study Abroad	0.1220*** (0.0342)	0.0849* (0.0392)	0.0844 [.041]* (0.0392)
Student Government	-0.0720 (0.0491)	-0.119 (0.0652)	-0.121 [-.040] (0.0653)
Intercollegiate Athletics	-0.2270*** (0.0427)	-0.218*** (0.0479)	-0.217 [-.088]*** (0.0478)
Transfer from Four Year	0.1070 (0.1040)	-0.0168 (0.146)	-0.0148 [-.001] (0.146)
Transfer from Two Year	0.1600 (0.1140)	0.392* (0.159)	0.396 [.039]* (0.158)
Hours Per Week: Attend Class	-0.0088 (0.0147)	0.00171 (0.0163)	0.00165 [.002] (0.0163)
Hours Per Week: Commuting	0.0178 (0.0119)	0.0181 (0.0145)	0.0180 [.025] (0.0145)
Hours Per Week: Studying	-0.0414*** (0.0114)	-0.0465*** (0.0138)	-0.0464 [-.067]*** (0.0138)
Hours Per Week:	0.0210***	0.0181*	0.0182 [.045]*

Working Off Campus		(0.0056)	(0.00740)	(0.00739)
Hours Per Week:		0.0156*	0.0211**	0.0212 [.047]**
Working On Campus		(0.00611)	(0.00753)	(0.00752)
Distance to Home		0.0264	0.0333	0.0333 [.041]
		(0.0149)	(0.0174)	(0.0174)
White Protestant			-0.471***	-0.386 [-.108]**
			(0.104)	(0.128)
White Protestant x Science				0.127 [.019] (0.197)
White Protestant x Applied				-0.363 [-.072] * (0.152)
Constant	-1.8450***	-4.1130***	-3.660***	-3.666***
	(0.0419)	(0.4110)	(0.457)	(0.457)
Wald Chi-Squared	169.89	2566.48	2659.03	2718.00
Pseudo R-Squared	.010	.074	.072	.073
Number of Cases	82,428	63,130	41,685	41,685

Robust standard errors in parentheses. X-variable standardized coefficients in brackets.
*** p<0.001, ** p<0.01, * p<0.05 (Two-tailed tests)

Table 4: Regression Coefficients

VARIABLES	(1) Decrease Attendance	(2) Decrease Attendance	(3) Decrease Attendance	(4) Decrease Attendance
Science Major	-0.0230	-0.0292	-0.0532	-0.0679 [-.030]
	(0.0399)	(0.0296)	(0.0383)	(0.0407)
Applied Major	-0.1730***	-0.1360***	-0.0925***	-0.0750 [-.037]**
	(0.0369)	(0.0229)	(0.0222)	(0.0230)
Year		0.0054	-0.00322	-0.00335 [-.007]
		(0.0085)	(0.00790)	(0.00791)
Selectivity		0.0009*	0.000525	0.000523 [.067]
		(0.0004)	(0.000326)	(0.000326)
Female		-0.0582*	-0.0717**	-0.0710 [-.034]*
		(0.0240)	(0.0277)	(0.0277)
White		0.1450**	0.117**	0.117 [.042]**
		(0.0433)	(0.0432)	(0.0431)
African American		-0.2000**	-0.217**	-0.216 [-.040]**
		(0.0638)	(0.0708)	(0.0707)
Asian American		0.1040*	0.163**	0.163 [.038]**
		(0.0456)	(0.0513)	(0.0512)
Parental Income		0.0059*	0.00405	0.00411 [.022]
		(0.0022)	(0.00260)	(0.00258)
First Gen Student		0.0301	0.0141	0.0134 [.004]
		(0.0329)	(0.0431)	(0.0429)
HS GPA		-0.0698***	-0.0717***	-0.0715 [-.081]***
		(0.0097)	(0.0108)	(0.0108)
Goal: Community Leader		-0.0603***	-0.0546**	-0.0543 [-.049]**
		(0.0140)	(0.0170)	(0.0170)
Goal: Performing Arts		-0.0621***	-0.0591***	-0.0591 [-.052]***
		(0.0113)	(0.0133)	(0.0132)
Goal: Authority in a Field		0.0080	0.0206	0.0202 [.017]
		(0.0121)	(0.0139)	(0.0139)
Goal: Clean Environment		0.0670***	0.0682***	0.0683 [.056]***
		(0.0142)	(0.0152)	(0.0152)
Goal: Successful in Business		0.0226	0.0174	0.0168 [.017]
		(0.0107)	(0.0124)	(0.0124)
Goal: Being Well Off Financially		0.1960***	0.182***	0.182 [.156]***
		(0.0131)	(0.0158)	(0.0158)
Goal: Creating Artistic Works		0.0274	0.0397*	0.0397 [.032]*
		(0.0153)	(0.0187)	(0.0188)
Goal: Develop Philos Of Life		-0.0129	-0.0305*	-0.0303 [-.030]*
		(0.0109)	(0.0140)	(0.0140)

Goal: Helping Others	-0.1640***	-0.140***	-0.141 [-.019]***
	(0.0158)	(0.0191)	(0.0191)
Goal: Promote Racial	0.0559***	0.0454**	0.0452 [.039]**
Understanding	(0.0143)	(0.0171)	(0.0172)
Goal: Understand Other	-0.0059	0.00106	0.000991 [.001]
Cultures	(0.0154)	(0.0175)	(0.0175)
Goal: Influence Social	-0.1500***	-0.132***	-0.132 [-.112]***
Values	(0.0135)	(0.0188)	(0.0187)
Goal: Influence Political	0.0581***	0.0646**	0.0647 [.056]**
Structure	(0.0160)	(0.0230)	(0.0229)
Goal: Keep Up to Date	-0.0111	-0.0175	-0.0176 [-.016]
On Politics	(0.0125)	(0.0164)	(0.0164)
Goal: Make Contribution	0.0436***	0.0298*	0.0307 [.027]**
To Science	(0.0106)	(0.0117)	(0.0119)
Goal: Recognition from	0.0908***	0.0533***	0.0530 [.044]***
Colleagues in Field	(0.0137)	(0.0151)	(0.0151)
Goal: Participate Comm.	-0.0670***	-0.0562**	-0.0555 [-.047]**
Action Program	(0.0137)	(0.0179)	(0.0179)
Goal: Write Novel/Poetry	0.0097	0.0179	0.0180 [.015]
	(0.0125)	(0.0152)	(0.0152)
Political Views	0.3660***	0.268***	0.268 [.220]***
	(0.0201)	(0.0226)	(0.0225)
University	-0.5500***	-0.554***	-0.555 [-.247]***
	(0.1350)	(0.125)	(0.124)
Catholic School	-0.4520***	-0.498***	-0.500 [-.241]***
	(0.0475)	(0.0495)	(0.0497)
Other Religious School	-0.6250***	-0.413***	-0.413 [-.148]***
	(0.1060)	(0.0909)	(0.0906)
Private School	-0.2150	-0.271*	-0.271 [-.076]*
	(0.1270)	(0.118)	(0.118)
Study Abroad	0.0288	-0.0198	-0.0211 [-.010]
	(0.0301)	(0.0261)	(0.0260)
Student Government	-0.2050***	-0.227***	-0.229 [-.076]***
	(0.0383)	(0.0381)	(0.0380)
Intercollegiate Athletics	0.0422	0.0382	0.0385 [.016]
	(0.0313)	(0.0311)	(0.0311)
Transfer from Four Year	-0.2170**	-0.269*	-0.267 [-.26]*
	(0.0760)	(0.110)	(0.110)
Transfer from Two Year	-0.2260*	-0.133	-0.128 [-.012]
	(0.0926)	(0.136)	(0.136)
Hours Per Week:	-0.0306**	-0.0200	-0.0200 [-.023]
Attend Class	(0.0098)	(0.0108)	(0.0108)
Hours Per Week:	-0.0037	-0.000836	-0.000898 [-.001]
Commuting	(0.0115)	(0.0144)	(0.0144)
Hours Per Week:	-0.0690***	-0.0787***	-0.0785 [-.113]***

Studying		(0.0096)	(0.0113)	(0.0113)
Hours Per Week:		0.0062	0.00981	0.00992 [.025]
Working Off Campus		(0.0053)	(0.00603)	(0.00601)
Hours Per Week:		-0.0089	-0.0203***	-0.0202 [-.045]***
Working On Campus		(0.0058)	(0.00600)	(0.00601)
Distance to Home		0.0259	0.0329**	0.0330 [.040]**
		(0.0124)	(0.0113)	(0.0112)
White Protestant			-0.557***	-0.512 [-.147]***
			(0.0959)	(0.104)
White Protestant x Science				0.157 [.024] (0.102)
White Protestant x Applied				-0.189 [-.038]** (0.0730)
Constant	0.2910***	0.1130	1.226*	1.216*
	(0.0574)	(0.6810)	(0.581)	(0.584)
Wald Chi-Squared	24.65	3093.01	1523.95	1663.04
Pseudo R Squared	.001	.056	.049	.049
Number of Cases	82,698	61,995	37,163	37,163

Robust standard errors in parentheses. X-variable standardized coefficients in brackets.
*** p<0.001, ** p<0.01, * p<0.05 (Two-tailed tests)