The Impact of Religious Diversity on Students' Academic and Behavioral Outcomes*

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Abstract

This paper explores how religious diversity affects college students' academic performance and behavior towards members of other religions. Our setting is a secular four-year university located in Lebanon, a country that is deeply divided along religious lines. To identify causal effects, we exploit the university's random assignment of first-year students to peer groups. We proxy students' religious backgrounds by whether they attended secular, Christian or Islamic high schools. For students coming from Islamic high schools, we find that exposure to peers from different religious high school backgrounds increases their enrollment in classes with non-Muslim instructors, suggesting that contact improves openness towards members of other religions. Contact also impacts students' academic performance: we show that exposure to peers from non-Islamic high schools increases the GPA of students from Islamic high schools. On the other hand, exposure to peers from Islamic high schools reduces the GPA of students from secular high schools. These asymmetric effects highlight the heterogeneous academic returns to inter-religious mixing in a divided society.

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1 Introduction

In many countries, religion is a source of deep societal divisions, violent conflicts and political polarization. In the United States, Putnam, Campbell and Garrett (2012) argue that an important change over the past half century is "how Americans have become polarized along religious lines. Americans are increasingly concentrated at opposite ends of the religious spectrum—the highly religious at one pole, and the avowedly secular at the other". In the Middle East, one of the most conflict-prone regions in the World, tensions between different religions have long contributed to the prevalence of hostilities (Pew Research Center, 2016). A long-standing question is how to increase trust and reduce tensions between different religious groups.

Postsecondary institutions are uniquely positioned to help bridge gaps between divided communities. Indeed, previous research has found that racial diversity in college increases racial tolerance (e.g. Carrell, Hoekstra and West, 2019). These findings are consistent with the contact hypothesis which predicts that interactions between different groups are expected to break down negative preconceptions and improve intergroup relationships (Williams Jr., 1947; Allport, 1954).[1] While religious diversity in college is also believed to increase openness towards other religions (Wuthnow, 2007), causal evidence on this topic is non-existent. Filling this knowledge gap is crucial since religious interactions in secular learning environments such as postsecondary institutions can provide an important proof of concept for policies aimed at reducing religious polarization and conflict. Understanding the effects these religious interactions have on student's outcomes and behaviors is an important first step in this direction.

This paper presents some of the first causal evidence on whether and how higher education influences students' behavior towards members of other religions. We focus on the role of a specific dimension of the college experience: interacting with peers from different religious backgrounds.[2] Diversity in college is expected to improve students' learning outcomes, as engaging in discussions with peers with different viewpoints may increase critical thinking, problem-solving skills and academic aspirations (Gurin et al., 2002). Empirically, however, no previous work has examined whether students' academic success is influenced by their peers' religious background.

[1] Allport (1954) argues that intergroup contact is beneficial under the conditions that groups have equal status, common goals, are in non-competitive environments and are backed by social authorities or institutions that support positive contact.

[2] As we further discuss below, our measure of religious background is whether a student attended a religious (Christian or Islamic) or secular high school and we cannot identify a student's exact religion. As such, throughout the paper, the terms "religious background", "religious diversity" and "inter-religious contact" pertain to students' religious high school type and not their actual religion.

We examine how exposure to college peers from different religious backgrounds affects students' openness towards members of other religions as well as their academic performance. To do so, we use rich administrative data from the years 2001 to 2016 on all students enrolled at the American University of Beirut (AUB), a private secular four-year college located in Lebanon. The country's long history of deep sectarian divisions makes it particularly relevant for assessing whether contact improves intergroup relationships. Indeed, political competition between Christians and Muslims contributed to the eruption of the 1975-1990 Civil War (Patterson, 2013). Some important factors led to the persistence of sectarian tensions and violence even after the war ended. For example, religious groups view themselves to be distinct from one another and, as such, have no interest in building a common national identity (Chamie, 1976).

Our setting has two additional features which make it ideal for studying the question at hand. First, students at AUB are randomly assigned to peer groups during their first year. This allows us to identify the causal effects of intergroup interactions. Specifically, at the beginning of their first year, they are randomly assigned to academic advisors whose main job is to help them select courses. Students matched to the same advisor have many informal avenues to interact with each other and are more likely take similar classes during their first year of college. We define a peer group as all students matched to the same advisor. Second, AUB attracts students from very different religious backgrounds. In a country that is residentially segregated along religious lines, the university also provides many of these students with their first opportunity to have meaningful interactions with individuals from other religions.

We proxy students' religious backgrounds by the type of high school they attended. Prior to enrolling in college, Lebanese students attend either secular or religious (i.e., Christian or Islamic) schools, which differ along three main dimensions. Religious schools devote part of their coursework for the teaching of their corresponding religion, while secular schools provide no religious education. For all other subjects, high schools are required to follow a common national curriculum. Schools further differ in the level of religious diversity of their student body. Secular schools are the most diverse as they admit students from all religions. Christian schools mainly have Christian students, while Islamic schools are the most homogeneous as they enroll exclusively Muslim students. Another notable difference is that secular and Christian schools disseminate Western culture and ideas, while Islamic schools are more conservative and often propagate anti-Western sentiment. As we further detail below, while there are other potential non-religious differences across these schools, such as gender composition or socioeconomic background, we find no evidence that such factors are driving our findings.

As a measure of student behavior or openness towards members of other religions, we look at the probability that students enroll in courses with instructors from different religions than their own. We use instructors' names as a proxy for their religion, as names are often seen as signals of cultural identity. Parents may adopt culturally distinctive names to retain their ingroup identity, while non-culturally distinctive names can signal a desire for integration (Fryer and Levitt, 2004; Abramitzky, Boustan and Eriksson, 2016). Importantly, in Lebanon, individuals' names are a good predictor of their religion and are often used in society to informally identify one's religion. Additionally, instructors' names are prominently displayed in the software used by AUB students for course registration. Taken together, these make instructor choice a salient potential outcome of interest for students.

Why and how is intergroup contact expected to change students' instructor choice and academic performance? In Lebanon, there is a high level of mistrust among individuals from different religions. In our setting, we argue that mistrust is highest among students coming from Islamic schools as they are the minority group at the university and belong to a historically disadvantaged group in Lebanon.[3] Cohen and Steele (2002) show that students, who belong to a stigmatized minority group with low levels of trust, may feel that teachers and educational institutions are biased against them. This in turn might demotivate them and decrease their academic performance. They also argue that when these students are no longer "viewed through the lens of a negative stereotype", they will increase their trust in teachers and institutions, as well as invest more in their education and improve their academic performance. In our context, intergroup contact could break down potential feelings of being stereotyped or marginalized among our minority group i.e., Islamic school students.[4] This will raise Islamic school students' trust, which would be predicted to improve their performance and increase their likelihood of taking courses with different-religion instructors. Indeed, previous research indicates that children prefer to learn from teachers whom they trust, and favor instructors from similar backgrounds (Chen, Corriveau and Harris, 2013).[5]

[3]Alesina and La Ferrara (2002) show that some of the factors predicting low levels of trust are being part of a minority group that historically felt discriminated against and being educationally and economically disadvantaged. In Lebanon, Muslims, especially Shi'a, were historically disadvantaged in terms of education and income. Chamie (1976) reports that in 1971, prior to start of the civil war, average family income for Christians was 28% higher than Sunnis and 58% higher than Shi'a. On average, Christians had a substantially higher level of education, were less likely to hold manual labor jobs and had lower levels of fertility compared to Muslims.

[4]Corno, La Ferrara and Burns (2022) offer a closely related explanation for why they document that Black college students improve their academic performance when exposed to White peers. They argue that their effects on Black students' performance are potentially driven by a reduction in stereotype threat.

[5]This is consistent with an extensive body of work in economics showing that same gender or same race teachers improve academic outcomes, as students potentially view them as role models (Carrell, Page and West, 2010; Fairlie, Hoffmann and Oreopolous, 2014).

Our findings indicate that Islamic high school students are 1.7 to 2 percentage points (4.7 to 5.5 percent) less likely to take courses with instructors who have distinctively Muslim names when the share of secular peers increases by 10 percentage points at the expense of Islamic high school peers. This suggests that for students coming from the most religiously homogenous backgrounds, intergroup contact increases their openness towards members of other religions. In contrast, we show that for students from secular and Christian high schools, being exposed to dissimilar peers has no significant effect on their instructor choice.

We also examine whether intergroup contact affects students' academic performance. We find that students from Islamic high schools experience a significant 11.4 percent of a standard deviation increase in their first-year GPA when their peer group has 10 percentage points more Christian as opposed to Islamic school students. We document a significant and comparable improvement in their GPA upon graduation as well as an increase in on-time graduation likelihood. We find that contact with peers from Islamic or secular schools has no effect on GPA for students who attend Christian high schools. Conversely, we show that students from secular schools perform somewhat worse in their first year (6.5 to 8.7 percent of a standard deviation) when exposed to a 10 percentage point higher proportion of peers from Islamic as opposed to secular high schools. This leads to a lower GPA at graduation and reduced on-time graduation likelihood. Our documented negative effects on secular students are consistent with previous studies looking at interactions between immigrants and native school students outside of the United States. These studies mostly find that exposure to immigrants or the minority group (i.e., students from Islamic high schools in our setting) adversely impacts the academic performance of natives or the majority group (i.e., students from secular high schools in our setting) (Gould, Lavy and Paserman, 2009; Ballatore, Fort and Ichino, 2018).[6]

We provide additional evidence to corroborate that our findings are due to exposure to peers from different religions and/or from different cultures related to religion—and not due to other peer characteristics.[7] First, our effects are unchanged when we control for peer group's academic ability, high school language of instruction, gender composition and socioeconomic background. Second, we show that contact does not predict the quality of chosen instructors, as proxied by value-added measures, highlighting that instructor religion

[6]The baseline gap between Islamic and secular school students' academic performance is nonetheless much smaller than the gap between immigrant and native students in other contexts.

[7]Our findings for Islamic school students are due to exposure to secular students. As secular schools enroll both Muslim and Christian students, we cannot conclusively establish whether this effect is due to exposure to more students from a different religion (Christian students coming from secular high schools) or to more Muslim students from secular high schools. In the latter case, our results would be driven by exposure to peers from a different culture related to religion—that is, to peers who are less religious and who have been previously exposed to religious diversity.

is independent of instructor quality. Third, our effects depend on the religious diversity in students' high school districts, which is consistent with the premise that it is the religious or cultural aspect of the peer interaction that is driving our results. Specifically, we find that our main effects are concentrated among Islamic students whose high schools are located in heterogeneous districts. These are the most polarized and conflict-prone areas in Lebanon and so students coming from these districts likely have the most negative views towards other religions.

Our paper is the first to examine the implications of inter-religious contact in an educational context. Previous studies on intergroup contact in higher education have looked exclusively at interactions between peers from different races, and find that exposure to black peers improves white students' racial attitudes, and increases interracial interactions.[8] A long line of work shows that at the aggregate level, ethnic and religious diversity can have adverse effects on economic growth and conflict (see Alesina and La Ferrara, 2005 and Ray and Esteban, 2017 for detailed reviews). The naturally occurring contact in our setting is distinct from recent work on inter-religious interactions, where researchers have more control over the nature of these interactions.[9] This could explain why we document an increase in openness towards other religions, while this previous work finds limited effects on attitudes. Our findings are consistent with Clingingsmith, Khwaja and Kremer (2009) who show that contact between Muslims from different countries, occurring naturally via participation in the hajj pilgrimage, improves tolerance towards other religions.

Our study is the first to shed light on the causal role of religion in higher education by highlighting the significance of interactions between students from different religious backgrounds. This extends a long body of prior work on the link between religion and education, which has examined how individual's level of education affects religious beliefs and whether religious education impacts religiosity.[10]

Finally, our paper is the first to show that exposure to peers from different religious backgrounds is a strong determinant of students' academic success. It thus builds on an extensive literature looking at the role of fixed peer characteristics and social identity in explaining educational choices and performance (see Sacerdote, 2014 for a detailed review). This literature has primarily focused on characteristics such as peer gender, race, ethnic-

[8]See Van Laar et al. (2005); Boisjoly et al. (2006); Marmaros and Sacerdote (2006); Carrell, Hoekstra and West (2019); Corno, La Ferrara and Burns (2021). Other important studies have focused on interactions between individuals from different social classes, genders or castes in various contexts such as schools, the military and cricket leagues (Rao, 2019; Dahl, Kotsadam and Rooth, 2021; Lowe, 2021).

[9]See Scacco and Warren (2018); Mousa (2020).

[10]See, Glaeser and Sacerdote (2008); Hungerman (2014); Gulesci and Meyersson (2015); Becker, Nagler and Woessmann (2017); Mocan and Pogorelova (2017); Cesur and Mocan (2018); Arold, Woessmann and Zierow (2022).

ity and socioeconomic background.[11]. However, despite religion being one of the strongest identifiers of social identity, there is no clear evidence on the link between peers' religious background and own academic performance. Our findings indicate that religious diversity may be an important and overlooked determinant of students' academic success.

2 Institutional Background

2.1 Lebanon's Religious Conflict

Lebanon's history is marked by deep sectarian divisions and violent conflicts. From 1920 to 1943, the country was under French mandate. The French favored Christian Maronites over other sects and gave them a disproportionate amount of economic and political power. At the end of the French mandate, the 1943 National Pact established a sectarian power-sharing system, which divided governmental offices between sects. Importantly, it stipulated that the Lebanese president should be Christian Maronite, the prime minister Sunni Muslim and the speaker of the parliament Shi'a Muslim. Through controlling the presidency, Christians were able to maintain considerable political influence over the following years. Mounting political tensions between Christian elites and the large Muslim population partially contributed to the eruption of the Lebanese civil war in 1975 (Chamie, 1976). This multifaceted and inter-religious war was "one of the most devastating conflicts of the late 20th century" (Haugbolle, 2011), resulting in over 100,000 fatalities and the displacement of around two-thirds of the Lebanese population (Labaki and Abou Rjeily, 1994). The conflict ended in 1990 with the signing of the Taif Accord. The agreement maintained the pre-war power-sharing system, but shifted the balance of power away from Christians. The Christian President's prerogatives were curtailed and executive power was transferred from the Presidency to the Council of Ministers, which became equally divided between Christians and Muslims. Nonetheless, tensions between religious groups persisted in the post-war era (Haugbolle, 2011).

Several important factors reinforce the existence of deep religious-based social cleavages and inhibit national cohesion. First, religious groups perceive themselves to be distinct from one another, and prioritize preserving their autonomy over the development of a national identity (Chamie, 1976). Furthermore, the three main religious groups are politically and financially supported by various foreign powers, which strengthens sectarian tensions. Specifically, "the Shi'a are supported by and politically aligned with Iran, the Sunni are politically and financially indebted to Saudi Arabia and countries of the Arab Gulf" and Christians are

[11]See Hoxby (2000); Ballatore, Fort and Ichino (2018); Corno, La Ferrara and Burns (2019); Rao (2019).

politically aligned with France (Baytiyeh, 2017).[12]

Second, Lebanon is residentially segregated along religious lines. For example, in 2011, over 85% of registered voters in the districts of Mount Lebanon, Keserwan and Batroun were Christian (IFES, 2011). Shi'a Muslims are concentrated in the South of Lebanon, while Sunni Muslims are the largest sect in the city of Beirut and constitute a sizable majority group in the districts of Tripoli and Akkar. Even in the most diverse cities such as Beirut, religious groups tend to separate into different neighborhoods.

Finally, religious groups have developed their own separate and parallel legal and social institutions. For example, a characteristic of the Lebanese judicial system is that family law is handled exclusively by religious courts. These courts follow their own religious laws when deciding on matters such as marriages, divorce, inheritances and adoptions—and inter-religious marriages in Lebanon are still rare. Additionally, social services including schooling and health care are widely provided by political parties that represent the different religious groups (Cammett and Issar, 2010).

2.2 Lebanese Schools

Children in Lebanon first enroll in primary school at age 6. Primary education lasts six years, after which students enroll in middle school for another three years. Students then spend three years in high school. Private schools enroll 57% and 53% of primary and secondary school students, respectively (World Bank, 2018). Private schools offer primary through secondary education, so students do not have to change schools at different educational stages. On the other hand, in the public school system, primary and secondary education are housed in separate schools. All public primary and secondary schools are secular whereas private schools can be secular or religiously affiliated. There are two types of religious schools in Lebanon: Islamic and Christian schools. The following describes the main features of each type of school.

Christian Schools. Christian schools were established in Lebanon as early as the 19th century by Catholic and Protestant missionaries from Europe and the United States. Up until the mid-70s, the vast majority of private schools in Lebanon were Christian. Christian schools devote part of their curriculum to the teaching of their religion, hold religious services during school hours and organize spiritual activities. Many schools also host and encourage their students to participate in after-school Christian youth movements. Due to the fact that they are the oldest schools in Lebanon, some Christian schools enroll both Christian

[12]Each religious group is represented by a handful of political parties that are closely linked to clerics and religious institutions. Those political parties typically receive financial and political support from foreign countries.

and Muslim students, particularly if they are located in diverse areas. Christian schools also propagate Western culture and ideas. This is consistent with the fact that Lebanese Christians are historically pro-West and politically aligned with France.

Islamic Schools. Islamic schools in Lebanon include both Sunni and Shi'a schools. Up until 1975, the Makassed, an Islamic Sunni association which provides educational and social services and is supported by Saudi Arabia and other Gulf countries, operated the majority of Islamic schools in Lebanon. Other smaller independent Islamic schools were established in the 1960s, such as Al Amlieh school which was founded to serve the educational needs of the growing Shia population in Beirut. Since the mid-80s, the Iran-backed political party and militant group Hezbollah has established a large-scale network of health, social and educational centers and institutions in predominantly Shiite areas such as Nabatiyyeh, Baalbek and parts of Beirut (Cammett and Issar, 2010). Hezbollah is a Shi'a Islamist political party that has overwhelming support among the Lebanese Shi'a community. Its ideology is based on the destruction of Israel, greater influence in the Lebanese political system, and establishing an Islamic theocracy in Lebanon (Al-Aloosy, 2020). Hezbollah has its own military wing which has been actively engaged in national and regional armed conflicts over the years.[13] It is considered by many Lebanese Shi'a to be a resistance movement against the Israeli occupation of part of Southern Lebanon, which lasted from 1982 to 2000.
Similar to Christian schools, Islamic schools devote part of their curriculum to the teaching of their religion, as they provide Quran reading courses and hold prayers during the school day. Specifically, Sunni schools teach Islamic traditions that are common in Gulf countries, while Shi'a schools disseminate the Islamic Shi'a theology of Iran's Supreme Leader Ayatollah Khomeini. Islamic schools' student body is religiously homogeneous, as they enroll exclusively Muslim students. These schools also play an important role in shaping students' identity and ideology. For example, elements of Hezbollah's ideology such as its pro-Iran and anti-Israel stance, and the glorification of martyrdom are part of the general discourse at Shi'a schools.

Secular Schools. Private secular schools are either local independent schools or are part of international school networks such as the French Lycées which were established by the French secular Mission (or *Mission Laïque Française*), a non-profit organization operating schools in 39 different countries. They differ from religious schools in that they provide no religious education, they have a religiously diverse student body, and they have a western

[13]For example, in 2006, Hezbollah was engaged in a 34-day war with Israel. Since 2011, it has been substantially involved in the Syrian Civil War supporting the Ba'athist government led by Syrian President Bashar Al-Assad.

culture like Christian schools.

Finally, as in most settings, Lebanese schools differ along other dimensions that are not necessarily correlated to whether the school is religious or secular. Schools vary in their education quality and language of instruction. Math, physics, chemistry, biology, economics, sociology and philosophy are taught in either English or French depending on the school, while all other subjects are taught in Arabic. Schools also differ in the socioeconomic and gender composition of their student body. Additionally, we should note that the vast majority of schools including religious schools are not gender-segregated, and teachers and administrators in religious schools are not necessarily clerics. Finally, all schools are required to follow a common curriculum set by the Lebanese Ministry of Education, as students have to sit for a series of national written exams at the end of their last year of high school.

2.3 The American University of Beirut and Peer Formation

Our analysis focuses on students who are in the first year of their three-year undergraduate degree at AUB. High school students typically apply for admission into a major and university simultaneously. Admission into AUB is based on a composite score, which is a weighted average of grades 11 and 12 high school GPA (50%) and SAT scores (50%). Furthermore, majors at AUB vary in terms of selectivity and have different admission score cutoffs.

Students are assigned to an academic advisor who is a full-time faculty member in their academic department. Faculty typically volunteer to become advisors, but are incentivized to do so as they are awarded extra research funds in exchange for advising and advising counts as part of their university service. The process of assigning students to advisors is coordinated by university administrators working in different faculties, using a two-step procedure.[14] In the first step, students in a given major are sorted by either their ID numbers or last name, depending on cohort year, and placed on a list. In the second step, all faculty advisors from the same department are randomly ordered and placed on a separate list. For each department, administrators then pick the first name from the student list, enrolled in that department, and match it to the first name on the advisor list. They then move on to the second student and match them to the second advisor on the list. Administrators continue this process until all students are matched to an advisor within each department. This method also ensures that all advisors within the same department get a similar number of advisees. The average advisor group contains 63 students who are all enrolled in the same

[14]There are 6 faculties in AUB: the Faculty of Arts and Sciences, the Faculty of Engineering and Architecture, the School of Business, the Faculty of Health Sciences, the Faculty of Agriculture and Food Services, and the School of Nursing.

major. Advisor groups are assigned at the beginning of the year to newly enrolled students and include students from various years.

Students typically have the same advisor for the entire first year and they remain with them until they graduate unless a student requests a formal change of advisor or the advisor is no longer available to advise. Advisors' main roles are to (i) help students pick courses and develop a schedule, (ii) monitor students' academic progress and, (iii) assist students with various academic issues such transferring to another major, selecting a minor, deciding on course withdrawals, etc.

Students assigned to the same advisor have several opportunities to interact. First, each advisor holds a mandatory group orientation session for their students at the beginning of the sophomore year. Second, advisors have to meet with students one-on-one at the beginning of each semester in order to help them select courses and develop their study plan.[15] Importantly, students are given a three to four hour time block to meet with their advisors individually prior to the start of the semester; advisors typically meet with these students on a first-come first-served basis during this time block.[16] As a result, many students assigned to the same advisor show up to office hours at the same time, and have to wait for their turn outside of the advisor's office, giving them plenty of time to interact with other advisees. Indeed, for incoming students, the group and individual advising orientation sessions are typically their first interactions with other students at the university. To corroborate that the advisor group is a relevant peer group, we conducted an online survey targeted at 500 AUB alumni of which 6.6% responded. We asked respondents whether they met any of their friends at AUB through their advisor group and 18% indicated yes.[17] Finally, an advisor is likely to recommend that their students enroll in a similar set of courses during their first year, as he or she might believe that taking a specific bundle of courses is optimal for on-time degree attainment. Consequently, students assigned to the same advisor are more likely to enroll in the same courses during their first year (See section 5.1).

3 Data

We use student-level administrative data acquired from both the Registrar's and Admission's offices at the American University of Beirut (AUB). The data contain detailed

[15]Students have to attend the one-on-one meetings because during those meetings, advisors give them PINs that they need to register in courses.

[16]After the semester begins, additional weekly office hours are available to students.

[17]We view this as a lower bound of actual contact between peers from the same advisor group as our question asked about friends, whereas our effects do not have to be driven by close friends, but can be due to acquaintances or exposure to peers who do not necessarily becomes friends.

student-level information on course grades, semester GPA, major, gender, class, year of birth, math and verbal SAT scores, high school name and location as well as legacy status, that is whether students have a parent who graduated from AUB. The student-level administrative data also contain information on academic advisors that students are matched to, specifically, their faculty rank, department, and gender. We also manually collected data on the high schools students attended before enrolling at AUB. Specifically, using each high school's website, we acquired data on language of instruction, yearly tuition and whether these schools were secular, Christian or Islamic.[18] In cases where this information was not publicly available, we contacted high schools directly. We use these additional high school-level data to construct measures of treatment as well as controls for peer language and socioeconomic status.[19]

Our data initially included 19,087 students entering AUB as declared majors, i.e., pursuing a 3-year degree, between the academic years 2001-2002 and 2016-2017. We exclude all students who have missing baseline covariates and those whose entire peer group have missing key characteristics. Additionally, we exclude departments that had fewer than 50 students over the whole period we study as well as newly created departments/majors that are not represented in all years of our data. Finally, we drop all students who never declared a major, as these students were never matched to a specific department. This leaves us with a final sample of 12,576 students who entered AUB as declared majors between the academic years 2001-2002 and 2016-2017.[20] Over this entire period, students are matched to 219 distinct advisors in their first year. On average, each advisor serves for 3 years, resulting in the *random* formation of 666 distinct peer groups throughout this period.

To conduct additional analysis on instructor choice, we also construct a database of teachers' religion based on instructors' full names. This information was acquired through the registrar's office based on publicly available information on all final exams given at AUB for the academic years 2011-2012 to 2018-2019.[21] The final exam schedules contain infor-

[18]Christian and Islamic schools are all private, while secular schools can be either private or public. However, most students attending AUB come from private schools as only 171 students in our data are from public schools (corresponding to 74 schools). This is roughly 1.35% of our student sample. We pool all secular schools into the same category since private and public secular schools have to teach the same curriculum (due to national exit exam requirements) and both are not permitted to refer to religion in their teachings. Our results are robust to the exclusion of all public-school students.

[19]Peer high school language of instruction represents the proportion of students in a peer group whose second language of instruction is French as opposed to English. Additionally, peer socioeconomic status is defined using high school tuition as a proxy for income. Specifically, we construct a binary variable equal to one for students attending schools with a tuition greater than 9,000,000 LL or $6000 (median) and zero for those below. We also create another dummy for missing tuition.

[20]For results involving graduation outcomes, we also limit our sample to students entering AUB on or before 2012-2013 in order to accurately observe graduation status for all students, leaving us with a sample of 7,604 individuals.

[21]No documented records exist for final exam records prior to 2011. Additionally, records were lost for

mation on instructors' full names as well as course names and semester-year enabling us to then match this new information to our existing data. Formally, we identify instructor religion using a two-step process. In the first step, we cross-reference all names in our data with a database of pre-existing common names in Lebanon linked to their exact religion. This enables us to match around 40% of instructors to a particular religion, i.e. around 600 of the initial 1500 names found in our data. To determine the religious affiliation of the remaining instructors, we consulted four independent individuals from different sects and regions of Lebanon. Each individual was asked to classify the instructors into one of three categories: (a) Muslim, (b) Christian, or (c) ambiguous. An instructor's religion was assigned based on unanimous agreement among all four respondents. If no consensus was reached, the instructor's religion was recorded as ambiguous. Through this two-step process, we classified approximately 40% of instructors as Christian, 36% as Muslim, and 24% as religiously ambiguous. We then match the newly constructed instructor religion identifier to our original data using course name, instructor gender and semester-year. For our analysis of course selection, we restrict the data to second- and third-year courses because first semester registration occurs before students begin taking classes together and second semester registration occurs only one month into the start of the first semester. This precludes students from having enough time to meaningfully interact with their peers before making first-year registration decisions.[22] This leaves us with a final sample of 43,163 identified course level observations for 6,840 students spanning the academic years 2011-2012 to 2017-2018.[23]

Finally, to measure religious diversity in high schools' locations, we collect data on the religious composition of registered voters by electoral district which were released by the Lebanese Ministry of Interior and Municipalities following the 2011 parliamentary elections. Lebanon's administrative division comprises three levels. The largest administrative units are the 8 governorates, which are then subdivided into 24 districts or *Kadaa* followed by municipalities. The electoral districts we have data on roughly correspond to the *Kadaa*.[24,25] Across districts, the median share of voters who belong to the same religious majority is 82%.

the 2013-2014 fall semester and the 2014-2015 fall semester.

[22]We exclude courses taken in the 4th year and beyond since most majors require three years to completion.

[23]Some courses remain unmatched due to missing information on instructor name or missing instructor data for two academic terms (Fall 2013-2014 and Fall 2014-2015). We check whether the likelihood of having a missing instructor religion identifier is correlated with treatment and we find no evidence of this.

[24]The only difference between the two is that the *Kadaa* of Beirut is divided into 3 electoral districts. However, this electoral division has the advantage of capturing the largely-varying religious compositions of different neighbourhoods within Beirut.

[25]In Lebanon, individuals can reside in areas that are different than where they are registered to vote. To substantiate our findings and in results available upon request, we extract information on the religious composition of residents by district from the 2016-17 wave of the Arab Barometer survey. Our results are not sensitive to using this alternate measure of district-level religious composition.

We consider a district to be religiously non-homogeneous if the share of its registered voters who belong to the same religious majority is in the bottom 25th percentile of all districts.[26,27] We classify all other districts as religiously homogeneous.

3.1 Summary Statistics

Summary statistics for students in our main sample are provided in Table 1. In column (1), we present the mean and standard deviation (in parentheses) of key variables for the entire sample. Column (2) restricts the sample to students from a secular school background, column (3) to students from a Christian school background and column (4) to students from an Islamic school background. We begin by summarizing student baseline covariates in Panel A. Female students constitute about 44% of individuals in our sample, and this proportion is similar for students coming from different high school backgrounds. The average math SAT score for all students in our sample is 649 points. The math SAT scores differ slightly based on students' high school background. Those from Islamic and secular schools score closest to one another while students from Christian school backgrounds score roughly 0.014 standard deviations higher. Additionally, the average verbal SAT scores for students in our sample is 536 with some small differences across school types.[28] Approximately 24% of all students are legacy admits. This number is higher for students from secular school backgrounds (27%) compared to the other two groups (20%).

In Panel B of Table 1, we present summary statistics for student-level outcomes. The average first year GPA is 77.7 out of a possible 100 points. Further, we find no meaningful differences in GPA across school background type as students from all religious backgrounds perform roughly similarly in their first year at AUB. Around 16.5% drop out after the first year, with students from secular school backgrounds dropping out at the highest rate (17.1%) compared to students from Christian school backgrounds (15.2%) and Islamic school backgrounds (16.6%). Approximately 54% of all students graduate on time, but, only 40.9%

[26]These districts are Chouf, Baabda, Aley, Beirut 2 (an electoral subdivision of the Beirut district), Zahle and West Bekaa. On average, the share of voters who belong to the same religious majority in these districts is around 55%.

[27]We use the bottom 25th percentile to get enough variation in districts' religious diversity. Recall that the median share of registered voters who belong to the same religious majority is 82%. This means that if we split our sample between districts that are above or below the median, we would be misclassifying many highly homogeneous districts as non-homogeneous.

[28]We use SAT math scores as a proxy for peer ability when later analyzing the robustness of our main findings. We do so for three reasons. First, the mathematics portion of the SAT exam is weighted heavily by the university's admissions committee and thus considered high stakes from the perspective of students compared to the verbal SAT portion which is not taken seriously by students and administrators. Second, this is a standardized test that all students are required to take prior to enrolling at AUB thus making scores easily comparable. Third, there is significant overlap in math SAT score distributions across all three groups of students thus making it a sufficient control for peer ability.

of students from Islamic school backgrounds manage to do so. Additionally, around 77% of all students graduate in 6 years—which we use as our definition of ever graduating. This likelihood is only slightly lower for students from Islamic school backgrounds (74%). Finally, GPA at graduation is 79.7 points for all students in our sample; this does not vary significantly across groups.

We now present statistics for peer group level characteristics in panel C of Table 1. Around 30% of advisors in our sample are female and 33.5% of advisors are tenured, with no significant heterogeneity across student groups. The average advisor or peer group size is 63 students which is slightly larger than those found in studies looking at classroom peer effects, but significantly smaller than other studies that have found sizable peer effects using variation across large cohorts of school students (Hoxby, 2000; Lavy and Schlosser, 2011; Mouganie and Wang, 2020). Finally, we present summary statistics for our three treatment variables of interest. These are the leave-one out proportion of secular, Christian, and Islamic school background peers in a student's advisor group. The average proportion of secular school peers for students in our sample is 59.3%. Additionally, the average proportion of Christian school peers stands at 33.4%, while the average proportion of Islamic school peers that students face is 7.2%. Consistent with random assignment of peer groups, these proportions do not vary significantly across student background type. Finally, to visualize the variation we use to identify our effects, we plot the distribution of within department and year standard deviations in the proportion of of secular, Christian, and Islamic high school peers (Panels A through C of Figure 1).

4 Identification Strategy

Our empirical strategy leverages the fact that first-year students are randomly assigned to a peer group, i.e., their advising group, during their first year at AUB. Importantly, the random assignment of peers to advisors—a result we confirm in Appendix A—alleviates concerns over endogenous peer formation caused by student sorting based on similar characteristics. Our main focus is on estimating how peer match, in terms of religious high school background, affects student outcomes at university. To do so, we compare students from the same department who randomly face a higher proportion of students from their same religious high school background to those who face a lower proportion—depending on the advising group they are allocated to within their department during the first semester at university. Formally, we run the following regression model for all incoming first-year students:

$$
\begin{aligned}
Y_{idat} = \beta_0 + \beta_1 Christschool_i + \beta_2 Islamschool_i + \beta_3 PropChrist_{at} + \beta_4 PropIslam_{at} \\
+\beta_5 Christschool_i * PropChrist_{at} + \beta_6 Christschool_i * PropIslam_{at} \\
+\beta_7 Islamschool_i * PropChrist_{at} + \beta_8 Islamschool_i * PropIslam_{at} \\
+X_i'\gamma + A_a'\delta + \lambda_d + \sigma_t + \lambda_d year_t + \epsilon_{idat}
\end{aligned} \tag{1}
$$

where Y_{idat} refers to the outcome of interest for student i in department d matched to advisor or peer group a in academic year t. $Christschool_i$ is a dummy variable that takes on values of 1 if student i attended a Christian high school and 0 otherwise. $Islamschool_i$ is another dummy variable that takes on values of 1 if student i attended an Islamic high school and 0 otherwise. Both of these dummy variables are relative to the omitted category of secular high schools. $PropChrist_a$ represents the proportion of students in peer group a who attended a Christian high school and $PropIslam_a$ represents the proportion who attended an Islamic School. Additionally, we include interaction terms for all indicators and proportion measures. We summarize our main effects through a combination of these parameters: (1) For students coming from secular high schools, β_3 measures the effect of being matched to peers from Christian high schools relative to peers from secular schools and β_4 estimates the impact of matching with Islamic peers, relative to secular ones. (2) For students who attended Christian high schools, $-\beta_3 - \beta_5$ captures the effect of being matched to secular school background peers relative to similar peers (Christian) and $-\beta_3 - \beta_5 + \beta_4 + \beta_6$ measures peer diversity impacts when peers are from Islamic schools as opposed to Christian. (3) For students coming from Islamic high schools, $-\beta_4 - \beta_8$ captures the effect of being matched to secular peers relative to peers who attended similar schools (Islamic). $-\beta_4 - \beta_8 + \beta_3 + \beta_7$ summarizes the effects of peer diversity for Islamic school students matched with Christian as opposed to Islamic school peers. In our main results, all religious peer proportion measures are standardized so treatment should be interpreted as a one standard deviation increase in exposure to one set of peers (e.g. secular) relative to another set of peers (e.g. Christian).

We include department fixed effects λ_d since randomization occurs at the departmental level. We also include σ_t, an academic year fixed effect, that controls for unobserved changes across different years as well as department-specific linear time trends ($\lambda_d year_t$) to control for unobserved department level changes over time. The vector X_i' includes a set of student controls that contains information on students' gender, verbal and math SAT scores and legacy admission status. The vector A_a' controls for advisor level variables: academic rank and gender. Our simplest specification includes only these variables. For our main results, a more stringent, and preferred, specification instead only includes advisor fixed effects α_a, department-by-year fixed effects δ_{dt} and student controls X_i'. Standard errors are clustered at the peer group (treatment) level throughout to account for correlations among students

exposed to the same advisor and peer group in the same year.

Finally, while our institutional setting ensures the random assignment of sophomore students to advisors within a given department, we provide checks that confirm our data are consistent with a random process. First, we show that students' baseline characteristics are uncorrelated with their respective leave-one out proportion of Christian, Islamic or secular peers in Table A1. Second, in Table A2, we report results from additional tests of randomization using re-sampling techniques similar to those conducted in Carrell and West (2010). The details of these findings can be found in Appendix A.

5 Results

5.1 Evidence on Peer Interactions

The purpose of this section is to provide some formal evidence documenting interactions between peers assigned to the same advisor, i.e., a "first stage". While we do not have data that can speak to interactions outside the classroom, we are able to empirically test for sorting within courses at AUB. Indeed, our data suggest that, on average, students have 18 individuals from their advisor group in a given class. To investigate the extent of classroom peer sorting by religious groups, we run the following regression:

$$Y_{icdat} = \alpha_0 + \alpha_1 PropChrist_{at} + \alpha_2 PropIslam_{at} + \alpha_3 Christschool_i + \alpha_4 Islamschool_i + D'_{dt}\beta + X'_i\gamma + A'_a\delta + \lambda_d + \sigma_t + \epsilon_{icdat} \quad (2)$$

where Y_{icdat} are our three outcomes of interest representing the proportion of (1) Christian, (2) Muslim or (3) secular students in student $i's$ advisor group a who take the same class c during the first two semesters at university.[29] Additionally, we define a class as all sections of a course taught by instructors of the same gender during a specific semester; for example all sections of Calculus III taught by female instructors in the Spring Term.[30] α_1 and α_2 are our main parameters of interest representing the effects of a change in the proportion of Christian and Islamic school students in peer group a in year t relative to secular peers respectively. Furthermore, students in departments with a higher proportion

[29]For example, if 3 Islamic peers from a students' advisor group take a class with that student and that class contains 100 students, then this proportion is defined as 0.03 for the student.

[30]We do so because the only identifying information we have on course sections is instructor gender. We view this definition of classrooms as largely innocuous since most students who wish to take classes with their friends are not always able to enroll in the exact same section due to course timing conflicts as well as capacity constraints.

of individuals from a specific religion are more likely to have students from that religion represented in both their peer groups and classrooms. To address this mechanical relationship, we include D'_{dt}, a control for the department-level, leave-one-out mean proportion of Muslim and Christian students within each department-year. We include department fixed effects λ_d and an academic year fixed effect σ_t throughout. Standard errors are clustered at the peer group level (666 clusters). Finally, all religious peer proportion measures are standardized.

Results from this exercise are summarized in Table 2. Estimates from column (1) indicate that a one standard deviation, i.e., a 9.5 percentage point increase in exposure to secular peers relative to a 9.5 percentage point decrease in Islamic peers, increases the likelihood of taking a class with Islamic students from that same peer group by 0.4 percentage points, regardless of students' school background type. This amounts to a non-trivial 50 percent increase (off a mean base of 0.8 percent) in the likelihood of having an Islamic school student from your peer group in your classroom. Importantly, we find no statistical link between having more Christian school peers in an advisor group and the likelihood students take classes with Islamic school peers from that same advisor group.

Results reported in column (2) indicate that a one standard deviation (8.8 percentage points) increase in exposure to Christian relative to secular school peers increases the likelihood that students have a Christian student from their peer group appear in their classroom by 1 percentage point; which is equivalent to approximately a 20 percent increase off a mean outcome of 5.12 percent. However, we find no statistically significant effect on the likelihood of taking courses with Christian peers when students are exposed to a higher proportion of Islamic relative to secular advisor group peers. Finally, in column (3), we show that the proportion of Islamic and Christian peers—relative to secular peers—in a student's advisor group are negatively related to the probability of having an increased proportion of secular students from the same advisor group in class. Put together, findings from this exercise confirm that students within the same advisor group are more likely to sort into the same classes based on school background type.[31]

One concern with the above analysis may be that we are misattributing advisor group peers to the same classroom as a result of not observing full information on class sections. For example, if there are three sections for a specific class and all are taught by only female or male instructors, then students in all three sections would be considered classroom peers using our definition. In such cases, the above analysis may wrongly attribute this to evidence of classroom peer sorting, potentially biasing our estimates upwards. To alleviate concerns over this, we conduct two robustness checks. We find that our estimates on classroom peer

[31] Additionally, we show that these findings do not differ by student school type. Appendix Table B1 reports heterogeneous results by student school background and findings are similar.

interactions are robust to restricting the data to courses where we can identify more than one section, and to using data from all courses taken in all years since upper year courses have fewer sections (Appendix Table B2).

5.2 Effects on Academic Outcomes

We begin by presenting findings on how university students' first-year GPA is differentially affected by exposure to diverse versus similar proportions of religious school background peers. Column 1 of Table 3 shows treatment estimates using standardized GPA as outcome for the specification reported in equation (1) that includes the main parameters of interest, department fixed effects, year or cohort fixed effects, department specific linear time trends as well as advisor and student controls.[32] The presentation of results in Table 3 is similar to those that come after in that we summarize results separately for our three groups of students. In particular, rows 1 and 2 of Table 3 summarize effects for students from secular high schools who match with dissimilar peers (Christian in Row 1 and Muslim in Row 2) relative to similar school peers (secular). Rows 3 and 4 capture effects for students from Christian high schools who match with diverse peers from secular and Islamic school backgrounds respectively relative to Christian school peers. Finally, we present diversity estimates for students who attended Islamic high schools in the last two rows of Table 3. Specifically, coefficients in row 5 capture the effects of being matched with a higher proportion of secular as opposed to Muslim peers and row 6 captures diversity effects when the dissimilar peers are Christian. Recall, all proportion measures are standardized throughout and as such, treatment should be interpreted as a one standard deviation increase in exposure to one set of peers relative to another set of peers.

Results from the first row of column (1) indicate that for students coming from secular high schools, being matched to a higher proportion of Christian as opposed to secular peers has no effect on first-year performance. However, we find that a one standard deviation higher proportion of Islamic versus secular peers lowers first-year GPA by 3.7 percent of a standard deviation, as shown in row 2 of Table 3.[33] To further put the magnitude of our treatment into perspective, a one standard deviation increase in Islamic school peers is equivalent to a 4.6 percentage point (64 percent) increase off a mean base of 7.2 percent coupled with a 4.6 percentage point (8 percent) decrease in secular peers from a mean base

[32]Student controls include student gender, verbal and math SAT scores, legacy status. Advisor controls include gender and academic rank.

[33]The GPA increase we document for secular student matching is roughly comparable to estimates found in gender peer effects studies. For instance, Lavy and Schlosser (2011) find that a one standard deviation increase in the proportion of 5th grade elementary female students increases average test scores of girls and boys by 2.7 and 2.4 percent of a standard deviation respectively.

of 59.3 percent. The negative effect on secular students' academic performance is consistent with previous studies on classroom interactions between immigrants and natives outside of the United States (e.g. Gould, Lavy and Paserman, 2009; Ballatore, Fort and Ichino, 2018). Specifically, they show that natives' or the majority group's (i.e., secular in our case) academic performance is negatively impacted by exposure to immigrants or the minority group (i.e., Islamic students in our case).

For students who attended Christian high schools, we document that being matched to a higher proportion of dissimilar peers has no effect on academic performance. Indeed, a higher proportion of secular relative to Christian school peers at university has a small (0.020) and statistically insignificant effect on performance. Similarly, we find no statistically significant effect on performance when students from Christian high schools are exposed to Islamic school peers, though this estimate is not economically small (-0.015).

Finally, for students coming from Islamic schools—all of whom are Muslim students—being matched to a one standard deviation (8.8 percentage points) higher proportion of Christian as opposed to Muslim peers positively affects grade performance by 10.1 percent of a standard deviation.[34] To further ease interpretation of this finding, we perform back of the envelope calculations to understand the impact that replacing Islamic school peers with Christian school peers may have on Islamic school students. Results from this exercise indicate that replacing one Islamic school peer with one Christian peer would result in approximately a 1.8 percent of a standard deviation increase in first-year GPA for Islamic school students.[35] We also find positive but marginally significant effects for Islamic school students exposed to diverse secular peers at university (4.7 percent of a standard deviation increase that is significant at the 10% level), indicating that Islamic school students achieve academic gains when paired with peers from drastically different school environments.

In column (2) of Table 3, we show our main findings are robust to a more stringent specification that includes department-by-year fixed effects as well as advisor fixed effects, in line with the random assignment of students to peer groups.[36] Indeed, all statistically significant coefficients reported in column (1) remain so.

[34]This estimate is larger but close to the 6.6 percent of a SD reduction in test scores found in Carrell & Hoekstra (2010) when boys are exposed to a one standard deviation increase in disruptive male peers.

[35]Our back of the envelope calculation proceeds as follows. First, we know that the average advising or peer group contains 63 students. As a result, replacing 1 Islamic school student with 1 Christian school student would mean a $\frac{1}{63} \approx 1.6$ percentage point increase in the proportion of Christian relative to Islamic school peers. We know from our main estimate that an 8.8 percentage point (one standard deviation) increase in Christian relative to Islamic school students leads to a 10.1 percent of a standard deviation increase in GPA for Islamic school students. This would mean that a 1.6 percentage point increase would lead to a $\left(\frac{10.1 \times 1.6}{8.8}\right) \approx 1.8$ percent of a standard deviation increase.

[36]This exercise is similar to those conducted in classroom peer effects models whereby teacher fixed effects are included to account for correlated shocks among students placed in the same classroom.

It is possible that high school characteristics correlated with both high school religious type and academic outcomes may be driving our effects. As a result, in column (3) of Table 3, we further test the robustness of our results to the inclusion of important peer group characteristics. These include peer group ability, gender composition, high school language of instruction and socioeconomic status. Specifically, we do so by controlling for these average peer group characteristics and interacting them with student religious background in order to account for the fact that they may have differential effects on students from different religious high schools. For example, when controlling for peer ability, we do so by adding the following terms to regression equation (1): $\gamma_1 PeerQuality_a + \gamma_2 Islamschool_i * PeerQuality_a + \gamma_3 Christschool_i * PeerQuality_a$. Importantly, controlling for all the aforementioned peer characteristics has no effect on our main findings as shown in column (3) of Table 3. Specifically, we find that secular students experience a 4.8 percent of a standard deviation decrease in GPA when matched with a one standard deviation (4.6 percentage points) higher proportion of Islamic as opposed to secular school peers. Additionally, Islamic school students matched to a one standard deviation (8.8 percentage points) higher proportion of Christian, relative to Islamic, peers experience a 0.101 SD increase in first year GPA.[37] These additional results indicate that our documented findings on peer match are most likely due to cultural and religious aspects as opposed to other differences in peer composition across advisor groups. This specification results in a slightly reduced sample size due to missing peer-level variables. To make sure these findings are not due to changes in sample, we replicate the specification in column (2) using the reduced sample and present these results in column (4). Finally, in column (5) of Table 3, we examine whether our main first-year GPA effects persist in the longer run using our preferred specification presented in column (2).[38] We find that performance effects persist in the long run as we document comparable magnitudes on total GPA which mirror those found on first-year GPA.

Finally, using our preferred specification presented in column (2) of Table 3 we next look at graduation outcomes. These results are presented in Table 4. We begin by looking at whether peer match affects first-year dropout likelihood. Estimates reported in column (1) of Table 4 indicate that being matched to a similar or dissimilar group of peers has no significant impact on the likelihood of first-year college dropout, except for secular students who benefit when matched to a higher proportion of Christian versus secular school background

[37]The marginally significant effect we had found for Muslim high school students matched to more secular peers is no longer significant at the 10% level.

[38]One caveat with interpreting these regressions is that they are conditional on graduating from university, i.e. a potential outcome variable. However, given that we find no statistically significant impact on overall graduation, then this is most likely an innocuous restriction.

peers. In column 2 of Table 4, we present estimates on the likelihood of on-time graduation (4-year graduation). We find that for students coming from secular high schools, being matched to a one standard deviation (4.6 percentage points) higher proportion of peers from Islamic as opposed to secular schools decreases the likelihood of 4-year (on-time) graduation by 5.5 percentage points, significant at the 5 percent level. Notably, these are the same group of students who experienced reductions in first year GPA. We find no evidence of religious peer effects for students coming from Christian high schools. We do, however, find evidence of a positive impact on 4-year graduation rates for Islamic students matched to dissimilar peer groups. The direction of estimates are in line with those found on first year GPA.[39] Results presented in column (3) of Table 4, indicate that religious peer match has no statistically significant impact on 6-year or overall graduation rates for all types of students. However, these results are fairly imprecise precluding us from making any definitive conclusions regarding this outcome.

Taken together, our findings indicate that university students from secular high schools benefit academically from matching with similar secular peers. However, students coming from Islamic high school backgrounds benefit from matching with dissimilar or diverse peers; particularly peers who attended Christian high schools—which tend to be more conservative than secular high schools. These benefits are mainly in the form of short-and-long run GPA gains. In Appendix Table B3, we provide results summarizing pooled effect specifications in which treatment is defined as the proportion of peers from a different high school background. These results indicate that, on average, students see improvements in their first-year GPA as a result of increased diversity.

5.3 Effects on Behavior: Instructor Religion

We next turn to behavioral outcomes by investigating whether religious diversity impacts students' likelihood of taking classes with instructors from similar religions. To conduct this analysis, we run student-course level regressions analogous to equation (1) where the outcome of interest is a binary indicator that measures student and teacher religious match. For secular school students, we define outcome as one when an instructor's name is religiously ambiguous and zero otherwise. Table 5 summarizes findings from this exercise using four different specifications. Specifically, in column (1) of Table 5, we present religious peer match estimates on the likelihood that students and teachers are of the same religion that includes the main parameters of interest, department fixed effects, year or cohort fixed effects, student

[39]For graduation outcomes, we restrict our sample to students entering AUB from the years 2001-2002 to 2012-2013 in order to accurately assign four and six year graduation rates. This significantly reduces the sample size.

and advisor controls and department specific linear time trends. In column (2) we present estimates using specifications that include advisor fixed effects and department-by-year fixed effects. In column (3), we further include peer group characteristics, and in column (4), we replicate the specification in column (2) using the reduced sample in column (3).

We find some evidence suggesting that students from secular school backgrounds are less likely to take classes with religiously ambiguous, i.e. secular instructors, when they are faced with a one standard deviation (8.8 percentage points) higher proportion of Christian as opposed to secular school peers. However, this effect is not statistically significant at any level for all specifications presented in columns (1) through (4) of Table 5. We find no evidence of meaningful instructor choice changes for secular students matched with a higher share of Islamic school peers for any specification. Additionally, we find no evidence that religious high school peer composition has an effect on instructor choice for students coming from Christian high schools. Strikingly, though, we find that peer match has a significant impact on Islamic school students' instructor choices. Particularly, in row 5 of Table 5, we show that being matched to a one standard deviation (9.5 percentage points) higher proportion of secular as opposed to Islamic school peers decreases the likelihood that Islamic school students take classes with Muslim teachers by 1.6 percentage points (4.4 percent) in their second and third year in college. This decrease is robust to the inclusion of advisor and department-by-year fixed effects, as shown by the statistically significant 1.9 percentage point estimate in column (2). Our conclusions are also robust to the inclusion of peer group characteristics. Finally, we find no statistical evidence that Islamic students' instructor choice is affected when they are matched with a higher share of Christian as opposed to similar Islamic school peers, though the estimates in columns (2) through (4) are economically meaningful. Taken together, these findings indicate that religious diversity matters for Islamic school students and suggests that diverse peer contact drives them away from their in-group, as proxied by Muslim instructors, in essence promoting "openness" towards the outgroup.

As a robustness check, we show that these effects do not exist in settings where we would expect them not to. In particular, we find that first-year course instructor religion is unaffected by peer group composition. Indeed, first semester course registration occurs before students interact with their peers and second semester registration occurs one month into the start of the new academic year; before students have any prolonged and meaningful contact with students. Appendix Table B4 presents findings from this exercise. We find precisely estimated null peer match effects on first year teacher religion for any student group. If anything, the coefficients for Islamic high school students are the opposite sign of what we document for the second and third year.

6 Discussion

It is possible that instructor religion may pick up other attributes of an instructor such as their quality. To rule this out, using a standard teacher Value Added (VA) model to predict instructor quality (Chetty et al. 2014), we show that exposure to peers from different religious schools has no meaningful effect on being matched with higher or lower value-added instructors for students who attended Christian, Islamic or secular high schools in Table B5.[40]

To further support our interpretation that cultural or religious factors within the peer group drive the effects, we split the sample by whether high schools are in religiously heterogeneous or homogeneous districts. If prior religious diversity predicts our effects, then this would further corroborate that our findings are driven by the religious or cultural aspect of the peer interaction—and not by other peer characteristics. The heterogeneous districts have witnessed the most intense and violent inter-religious conflicts during the 1975-1990 Lebanese civil war.[41] What further distinguishes heterogeneous from homogeneous districts is that the existence of other religious groups is more salient. Recent research has shown that the salience of—but not interaction with—other religious groups can lead to and exacerbate negative sentiment (Colussi, Isphording and Pestel, 2021). As such, while AUB provides most students, regardless of school location, their first meaningful and sustained contact with members of other religions, this contact is, ex-ante, most likely to affect groups with the most recent negative inter-religious experiences.

Table 6 reports heterogeneous effects for our two main outcomes, first-year GPA in columns (1)-(2) and instructor religion in columns (3)-(4). Columns (1) and (3) rerun our main analysis but restricts the sample to students whose high schools are located in heterogeneous districts, while Columns (2) and (4) comprise students whose high schools are in homogeneous districts. In the overall sample, we document that for students from secular schools, intergroup contact reduces their GPA and likelihood of taking courses with secular teachers—although the latter effect is not statistically significant in the overall sample. Table 6 shows that these effects are concentrated among secular school students whose high schools are located in homogenous districts. Specifically, they experience a 4.9 percent of a deviation drop in first-year GPA and a 1 percentage points decrease in the likelihood of taking courses with secular teachers. This suggests that these secular schools are either not

[40]Specifically, instructor VA is estimated as the teacher fixed effect from a regression of standardized course grades on individual, class, and department-year cubic polynomials of verbal and math SAT scores; department-by-year fixed effects; advisor-by-year fixed effects and legacy status.

[41]For example, the 1975 Black Saturday Massacre, the first inter-religious mass killing of civilians during the civil war, took place in Beirut 2 which is one of our non-homogeneous districts. Part of Beirut 2 also later formed a demarcation zone which famously split the city of Beirut into Christian and Muslim areas until 1990 (Tamimova, 2018).

very religiously diverse or are diverse but may not be providing an environment that fosters religious tolerance.

For students from Islamic schools, the previously documented positive GPA and behavioral effects are concentrated among students whose high schools are located in heterogeneous districts. Specifically, Islamic school students whose high schools are in heterogeneous districts experience a 16.8 percent of a standard deviation increase in their first-year GPA when exposed to a one standard deviation (8.8 percentage points) higher share of Christian school peers (relative to Islamic school peers). Their likelihood of taking courses with Muslim teachers also decreases by 2.9 percentage points due to being matched to a one standard deviation (9.5 percentage points) higher proportion of secular school versus Islamic school peers, and by 5.4 percentage points when matched to a one standard deviation (8.8 percentage points) higher share of Christian versus Islamic school peers. In contrast, no significant GPA or behavioral effects are detected for Islamic school students coming from homogeneous districts.

These results emphasize that intergroup contact may be particularly beneficial for students who have likely not had meaningful positive contact with members of other religions and have witnessed firsthand the devastating effects of inter-religious conflict. This also highlights that universities may provide a unique environment that fosters positive intergroup interactions, which is consistent with Allport's (1954) seminal theory that intergroup contact is beneficial if it is backed by institutions that support positive contact. Importantly, our heterogeneity results also corroborate that our overall effects are due to the religious or cultural nature of the peer interaction—and not due to other channels.

7 Conclusion

This paper shows how interactions with peers from different religious schools shapes students' learning outcomes and behavior towards members of other religions. To do so, we exploit the American University of Beirut's unique setting, where first-year college students are randomly assigned to peer groups. An advantage of our data is that we can proxy students' religious background by whether they attended secular or religious high schools. Our results indicate that students from secular high schools have a lower GPA when matched to Islamic rather than secular school peers, but exhibit no changes in their behavior towards outgroups. In contrast, we show that students from Islamic high schools improve their academic performance and are less likely to take classes with Muslim teachers, when exposed to dissimilar peers. The latter finding suggests that intergroup contact increases Islamic students' "openness" towards other religions.

We further show that effects depend on the extent of diversity that students are exposed to prior to peer interactions. Specifically, the positive effects of intergroup contact on Islamic students' learning and behavioral outcomes are concentrated among those whose high schools are located in religiously heterogeneous but conflict-prone districts. These results highlight that universities may play a particularly important role in promoting tolerance even in the most divided societies.

Our findings have important implications for education and social policy. First, our study provides new evidence that a peer's religious background is a strong determinant of students' academic success. Second, our paper highlights that even in countries that are deeply divided along religious lines, behavior towards the outgroup is malleable and intergroup contact can be an effective way to promote openness towards different religions. Finally, the academic and behavioral benefits we document provide support for arguments in favor of increasing diversity in college, and highlight that postsecondary institutions may provide environments that promote positive intergroup contact.

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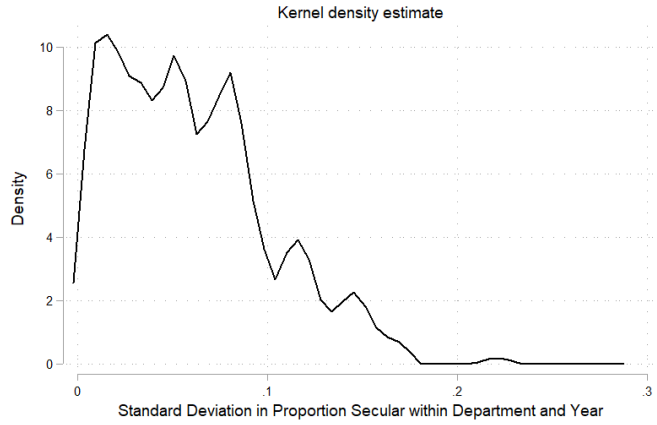
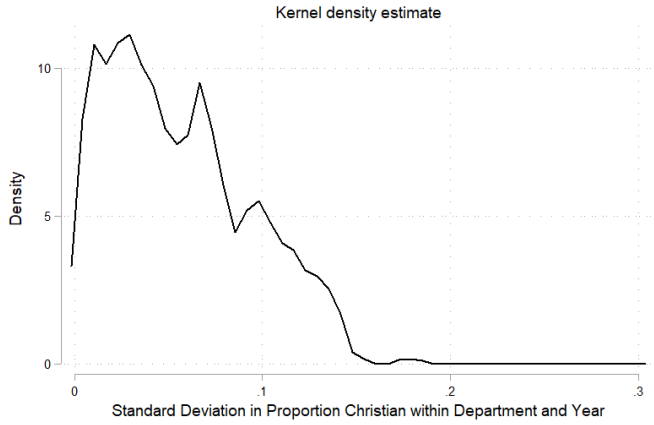
Figures

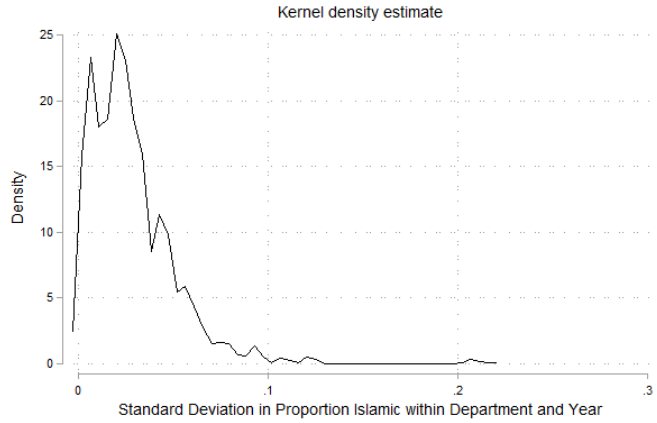
Figure 1: Standard Deviation in Proportion of Religious School Peers within University Department and Year



(a) Standard Deviation in Proportion of secular Peers within Department and Year



(b) Standard Deviation in Proportion of Christian Peers within Department and Year



(c) Standard Deviation in Proportion of Islamic Peers within Department and Year

Notes: Each figure plots the distribution of the within department and year standard deviation in the proportion of advisor group peers from a given religious school background using the main sample of 12,576 students reported in Table 1.

Tables

Table 1: Summary Statistics

	(1) All Schools	(2) Secular School	(3) Christian School	(4) Islamic School
A. Student Level Covariates				
Female	0.442	0.452	0.429	0.432
Math SAT	649.771	646.173	657.600	640.564
	(72.503)	(71.743)	(73.065)	(72.355)
Verbal SAT	536.41	540.65	548.74	500.52
	(112.58)	(109.37)	(113.40)	(123.04)
Legacy Status	0.244	0.274	0.206	0.195
B. Student Level Outcomes				
First-Year GPA	77.725	77.457	78.199	77.527
	(7.994)	(8.050)	(7.771)	(8.474)
Dropout	0.163	0.171	0.152	0.165
Graduate in 4 years	0.539	0.536	0.571	0.410
Graduate in 6 Years	0.777	0.776	0.787	0.740
Graduation GPA	79.732	79.558	80.061	79.372
	(5.922)	(5.968)	(5.858)	(5.831)
C. Peer Group Level Characteristics				
Female Advisor	0.300	0.310	0.288	0.285
Tenured Advisor	0.335	0.336	0.324	0.373
Peer Group Size	63.345	62.942	65.824	55.146
	(56.879)	(54.672)	(62.456)	(43.971)
Proportion Secular School Peers	0.594	0.599	0.587	0.589
Proportion Christian School Peers	0.334	0.330	0.341	0.334
Proportion Islamic School Peers	0.072	0.071	0.073	0.077
N	12,576	7,136	4,447	993

Notes: This table contains the means of listed variables with the standard deviation in parentheses. The number of observations for graduation outcomes is slightly lower as we have to restrict our sample to students who first enrolled in AUB prior to the academic year 2013-14. In panel C, the proportion of peers from a specific religious background is calculated for each student by using a leave-one out method. These proportions are reported without standardization for this table only.

Table 2: First Stage—Evidence on Peer Interactions

	(1) *Prop. Muslims from Advisor Peer Group in Class*	(2) *Prop. Christians from Advisor Peer Group in Class*	(3) *Prop. Secular from Advisor Peer Group in Class*
Proportion Islamic school peers	0.004***	-0.001	-0.005***
	(0.001)	(0.002)	(0.002)
Proportion Christian school peers	-0.001	0.010***	-0.009***
	(0.001)	(0.002)	(0.002)
N	120,790	120,790	120,790

Notes: Each column represents a different student-course-level regression. Sample includes all first time entering students from the academic years 2002 to 2017. Estimated coefficients in the table are derived from OLS regressions using Equation (2). All regressions include year fixed effects, department fixed effects, department level proportions as well as student and advisor controls. Student controls include gender, Verbal and Math SAT scores as well as legacy status. Advisor controls include gender and academic rank. Treatment variables are standardized. Standard errors are clustered by peer group and reported in parentheses. *** p <0.01 ** p <0.05 * p <0.1.

Table 3: Effect of Religious Diversity on GPA Outcomes

	(1) *First Year GPA*	(2) *First Year GPA*	(3) *First Year GPA*	(4) *First Year GPA*	(5) *Graduation GPA*
Students from secular schools					
Christian relative to secular school peers	-0.006	0.006	-0.003	0.007	-0.038
	(0.015)	(0.018)	(0.021)	(0.018)	(0.026)
Islamic relative to secular school peers	-0.037***	-0.031*	-0.048**	-0.031*	-0.060***
	(0.013)	(0.018)	(0.020)	(0.018)	(0.021)
Students from Christian schools					
Secular relative to Christian school peers	0.020	0.008	0.016	0.009	0.026
	(0.017)	(0.019)	(0.024)	(0.019)	(0.028)
Islamic relative to Christian school peers	-0.015	-0.024	-0.024	-0.023	-0.022
	(0.021)	(0.026)	(0.031)	(0.026)	(0.033)
Students from Islamic schools					
Secular relative to Islamic school peers	0.047*	0.049*	0.024	0.049	0.082**
	(0.028)	(0.030)	(0.032)	(0.030)	(0.033)
Christian relative to Islamic school peers	0.101***	0.101**	0.102**	0.102**	0.103**
	(0.038)	(0.039)	(0.052)	(0.041)	(0.047)
Department Fixed Effects	Yes	No	No	No	No
Year Fixed Effects	Yes	No	No	No	No
Department Linear Trend	Yes	No	No	No	No
Advisor Controls	Yes	No	No	No	No
Advisor Fixed Effects	No	Yes	Yes	Yes	Yes
Department-Year Fixed Effects	No	Yes	Yes	Yes	Yes
Peer Quality × Religious Background	No	No	Yes	No	No
Peer Gender × Religious Background	No	No	Yes	No	No
Peer Language × Religious Background	No	No	Yes	No	No
Peer Socioeconomic Status × Religious Background	No	No	Yes	No	No
N	12,576	12,576	12,547	12,547	6,101

Notes: Sample includes all first time entering students from the academic years 2002 to 2017. Estimated coefficients in the table are derived from OLS regressions using Equation (1). Student controls include gender, Verbal and Math SAT scores as well as legacy status. Advisor controls include gender and academic rank. Treatment variables are standardized. GPA outcomes are standardized. Standard errors are clustered by peer group and reported in parentheses. Regressions in columns (2) and (4) have the same specification but column (4) uses the reduced sample in column (3). *** p <0.01 ** p <0.05 * p <0.1.

Table 4: Effect of Religious Diversity on Graduation Outcomes

	(1) *Dropout*	(2) *4 Year Graduation*	(3) *6 Year Graduation*
Students from secular schools			
Christian relative to secular school peers	-0.028***	0.038	0.035**
	(0.008)	(0.023)	(0.017)
Islamic relative to secular school peers	-0.004	-0.055**	0.002
	(0.008)	(0.024)	(0.016)
Students from Christian schools			
Secular relative to Christian school peers	0.017*	-0.001	-0.002
	(0.009)	(0.023)	(0.018)
Islamic relative to Christian school peers	0.013	-0.036	0.010
	(0.010)	(0.024)	(0.021)
Students from Islamic schools			
Secular relative to Islamic school peers	0.016	0.054*	-0.023
	(0.011)	(0.028)	(0.024)
Christian relative to Islamic school peers	-0.011	0.088***	-0.010
	(0.014)	(0.034)	(0.032)
N	12,576	7,604	7,604

Notes: Sample includes all first time entering students from the academic years 2002 to 2017 for dropout and 2002 to 2012 for graduation outcomes. Estimated coefficients in the table are derived from OLS regressions using Equation (1). All regressions include advisor fixed effects, department-by-year fixed effects as well as student controls. Student controls include gender, Verbal and Math SAT scores as well as legacy status. Treatment variables are standardized. Standard errors are clustered by peer group and reported in parentheses. *** p <0.01 ** p <0.05 * p <0.1.

Table 5: Effect of Religious Diversity on Instructor Religion

	(1) *Instructor same religion as student*	(2) *Instructor same religion as student*	(3) *Instructor same religion as student*	(4) *Instructor same religion as student*
Students from secular schools				
Christian relative to secular school peers	-0.008	-0.004	-0.004	-0.005
	(0.005)	(0.005)	(0.006)	(0.005)
Islamic relative to secular school peers	0.000	-0.002	-0.002	-0.002
	(0.004)	(0.004)	(0.004)	(0.004)
Students from Christian schools				
Secular relative to Christian school peers	0.002	0.003	-0.001	0.003
	(0.006)	(0.006)	(0.007)	(0.006)
Islamic relative to Christian school peers	0.000	0.000	-0.004	0.001
	(0.008)	(0.007)	(0.008)	(0.007)
Students from Islamic schools				
Secular relative to Islamic school peers	-0.016*	-0.019**	-0.018*	-0.019**
	(0.009)	(0.009)	(0.009)	(0.009)
Christian relative to Islamic school peers	-0.002	-0.012	-0.025	-0.013
	(0.014)	(0.014)	(0.017)	(0.014)
Department Fixed Effects	Yes	No	No	No
Year Fixed Effects	Yes	No	No	No
Department Linear Trend	Yes	No	No	No
Advisor Controls	Yes	No	No	No
Advisor Fixed Effects	No	Yes	Yes	Yes
Department-Year Fixed Effects	No	Yes	Yes	Yes
Peer Quality × Religious Background	No	No	Yes	No
Peer Gender × Religious Background	No	No	Yes	No
Peer Language × Religious Background	No	No	Yes	No
Peer Socioeconomic Status × Religious Background	No	No	Yes	No
N	43,163	43,163	42,762	42,762

Notes: Sample includes course level data on students in their second and third year during the academic years 2012 to 2017. Estimated coefficients in the table are derived from course-level OLS regressions using Equation (1). Student controls include gender, Verbal and Math SAT scores as well as legacy status. Advisor controls include gender and academic rank. The outcome of interest is a binary outcome for whether students and instructors are from the same religion. Treatment variables are standardized. Standard errors are clustered by peer group and reported in parentheses. Regressions in columns (2) and (4) have the same specification but column (4) uses the reduced sample in column (3). *** p <0.01 ** p <0.05 * p <0.1.

Table 6: Heterogeneity based on religious diversity of high school's location

	(1) Non-Homogeneous Districts *First-Year GPA*	(2) Homogeneous Districts *First-Year GPA*	(3) Non-Homogeneous Districts *Instructor Same Religion*	(4) Homogeneous Districts *Instructor Same Religion*
Students from secular schools				
Christian relative to secular school peers	0.023	-0.004	-0.003	-0.010*
	(0.034)	(0.021)	(0.011)	(0.006)
Islamic relative to secular school peers	-0.017	-0.049**	0.006	-0.006
	(0.030)	(0.022)	(0.009)	(0.005)
Students from Christian schools				
Secular relative to Christian school peers	0.063*	-0.005	-0.002	0.006
	(0.038)	(0.023)	(0.012)	(0.008)
Islamic relative to Christian school peers	0.031	-0.048	-0.013	0.007
	(0.045)	(0.033)	(0.014)	(0.010)
Students from Islamic schools				
Secular relative to Islamic school peers	0.081*	0.032	-0.029**	-0.014
	(0.049)	(0.038)	(0.015)	(0.013)
Christian relative to Islamic school peers	0.168**	0.063	-0.054*	0.011
	(0.067)	(0.048)	(0.028)	(0.019)
N	3,745	8,438	10,446	24,978

Notes: Columns (1) and (2) sample includes all first time entering students from the academic years 2002 to 2017. Estimated coefficients in the table are derived from OLS regressions using Equation (1). All regressions include advisor fixed effects, department-by-year fixed effects as well as student controls. Student controls include gender, Verbal and Math SAT scores as well as legacy status. Advisor controls include gender and academic rank. Treatment variables are standardized. GPA outcomes are standardized. Columns (3) and (4) sample includes course-level data on students in their second and third year during the academic years 2012 to 2017. The outcome of interest is a binary outcome for whether students and instructors are from the same religion. Standard errors are clustered by peer group and reported in parentheses. *** p<0.01 ** p<0.05 * p<0.1

A Tests of Randomization

To identify the causal effect of being matched with a higher proportion of peers from a different religious school background, peer group formation must not be the result of students sorting on similar characteristics. While our institutional setting ensures the random assignment of sophomore students to advisors within a given department, we provide checks that confirm our data are consistent with a random process. First, we show that students' baseline characteristics are uncorrelated with their respective leave-one out proportion of Christian, Islamic or secular peers. To do so, we first test whether students' own high school background is correlated with treatment, i.e., the proportion of peers from a specific school background. Specifically, we run three separate regressions where we regress each of our three treatment proportions on a dummy variable for whether students attended a Christian, Muslim or secular high school. Following Guryan, Kroft, and Notowidigdo (2009), each regression includes a control for the department-level leave-one out mean of the proportion of Christian, Muslim and secular students respectively. This is done to correct for the mechanical relationship between students' school background and the proportion of peers from a given background, which may bias our randomization test.[42]

Columns 1, 2 and 3 of Table A1 summarize the results of these regressions. Column 1 presents estimates for three separate regressions representing the proportion of Christian, Islamic and secular peers on the likelihood students attended Christian high schools. Columns 2 and 3 present estimates for these same outcomes on the likelihood students attended Muslim and secular high schools respectively. Of the 9 estimates resulting from these regressions, we find only one statistically significant effect; students coming from Christian high schools are associated with a 0.15 percentage point increase in the proportion of Muslim peers. This estimate is statistically significant at the 5% level, though economically small. Next, we show that baseline characteristics related to student ability (SAT scores) are not associated with an increase or decrease in the proportion of peers from a specific school background. To do so, we run a series of regressions of these proportions on students' SAT scores. Columns 4 and 5 of Table A1 summarize the results of these regressions. We find that students' verbal and math SAT scores are not statistically related to any of the peer background proportions. Overall, only 1 of the 15 estimated coefficients in Table A1 is significant at the 5% level. These results are in line with our institutional setting and indicate that students who are assigned to advisor groups with a higher or lower proportion of peers from a specific religious

[42] As described in Guryan, Kroft, and Notowidigdo (2009), the problem arises because an individual cannot be matched with himself. For example, in our context, the peers for a student from a Christian school background are drawn from a group with a slightly lower proportion of students from Christian school backgrounds.

school background are similar in terms of baseline characteristics.

To further alleviate concerns over endogenous peer group formation with respect to student ability and background, we run additional tests of randomization using re-sampling techniques similar to those conducted in Carrell and West (2010). Specifically, we randomly draw 10,000 samples of equal size within department and year for each peer group combination without replacement. For each randomly sampled peer group combination, we then calculate the sums of the verbal SAT scores, math SAT scores, number of secular school students, number of Christian school students, and number of Islamic school students for all students in that sample. We then compute empirical p-values for each peer group based on the proportion of simulations with values less than that of the observed peer group sum. Under random assignment, all empirical p-values are equally likely to be observed so their distribution should be uniform. We test this using a χ^2 goodness of fit test.[43] The results of this test are summarized in panel A of Table A2. We only reject the null hypothesis of random assignment in 3 out of 871 tests of uniformity. Finally, we regress our constructed empirical p-values on the characteristics of the advisor attached to the peer group, namely gender and academic rank. These results are reported in panel B of Table A2 and indicate no significant relationship between the p-values and advisor characteristics. Put together, results from this section indicate that students were randomly divided into advisor peer groups within their respective departments, consistent with what our institutional setting would predict.

[43]Due to the stratified nature of the random assignment, and similar to Carrell, Hoekstra and West (2019), there are not enough coefficients to run a Kolmogorov-Smirnov one-sample equality of distribution test.

Table A1: Random Assignment Check

	(1) Christian School	(2) Muslim School	(3) secular School	(4) Math SAT	(5) Verbal SAT
Dependent Variable					
Proportion Christian	-0.00115	0.00345	0.00005	0.00002	-0.00000
	(0.00132)	(0.00233)	(0.00128)	(0.00002)	(0.00002)
Proportion Islamic	0.00158**	-0.00234	-0.00077	0.00001	-0.00000
	(0.00063)	(0.00166)	(0.00064)	(0.00001)	(0.00001)
Proportion Secular	-0.00044	-0.00102	0.00071	-0.00003	0.00001
	(0.00143)	(0.00243)	(0.00151)	(0.00002)	(0.00002)
N	12,576	12,576	12,576	12,576	12,576

Notes: Each estimate represents the results of a separate regression. Standard errors in parentheses are clustered at the peer-group level. All regression include department and year fixed effects. Following the Guryan, Kroft, and Notowidigdo (2009) correction, we control for the leave-out mean of the proportion of peers across cohorts within the department and year in columns 1 through 3. *** p <0.01 ** p <0.05 * p <0.1.

Table A2: Random Assignment Test

	(1) Math SAT Empirical P-Value	(2) Verbal SAT Empirical P-Value	(3) secular School Empirical P-Value	(4) Christian School Empirical P-Value	(5) Islam School Empirical P-Value
A. Test for Student Characteristics					
χ^2 goodness of fit test (no. failed/total tests)	1/179	1/180	0/181	1/180	0/155
B. Test for Advisor Characteristics					
Female Advisor	-0.001	0.002	-0.034	0.001	0.030
	(0.034)	(0.034)	(0.029)	(0.027)	(0.030)
Associate/Full Professor	-0.003	0.021	0.014	-0.014	-0.026
	(0.029)	(0.030)	(0.026)	(0.026)	(0.027)
N	804	804	804	804	804

Notes: Standard errors in parentheses are clustered at the advisor level. All regressions include year and department fixed effects. The empirical p-value of each advisor represents the proportion of the 10,000 simulated groups of students with a summed value less than that of the observed group. Sample includes students from academic years 2002-2003 till 2016-2017. The χ^2 goodness of fit test results indicate the number of tests of the uniformity of the distribution of p-values that failed at the 5% level. The reduced number of tests for Islam School is due to the fact some departments do not have any students from islamic schools in certain years.*** p <0.01 ** p <0.05 * p <0.1.

B Appendix Tables

Table B1: Evidence on Peer Interactions by Student School Background

	(1) *Prop. Muslims from Advisor Peer Group in Class*	(2) *Prop. Christians from Advisor Peer Group in Class*	(3) *Prop. secular from Advisor Peer Group in Class*
Students from Islamic Schools			
Proportion Islamic school peers	0.002***	-0.000	-0.004***
	(0.001)	(0.001)	(0.001)
Proportion Christian school peers	-0.000	0.012***	-0.003
	(0.001)	(0.002)	(0.003)
Students from Christian schools			
Proportion Islamic school peers	0.004***	-0.002	-0.006**
	(0.001)	(0.002)	(0.003)
Proportion Christian school peers	-0.001	0.009***	-0.013***
	(0.001)	(0.003)	(0.003)
Students from secular schools			
Proportion Islamic school peers	0.004***	-0.001	-0.005**
	(0.001)	(0.002)	(0.002)
Proportion Christian school peers	-0.000	0.011***	-0.008***
	(0.001)	(0.002)	(0.003)

Notes: Each column represents a different student-course-level regression. Sample includes all first time entering students from the academic years 2002 to 2017. Estimated coefficients in the table are derived from OLS regressions using Equation (2). All regressions include department fixed effects, year fixed effects, department level peer proportions as well as student and advisor controls. Student controls include gender, Verbal and Math SAT scores as well as legacy status. Advisor controls include gender and academic rank. Treatment variables are standardized. Standard errors are clustered by peer group and reported in parentheses. *** p <0.01 ** p <0.05 * p <0.1.

Table B2: Evidence on Peer Interactions—Robustness Checks

	(1) *Prop. Muslims from Advisor Peer Group in Class*	(2) *Prop. Christians from Advisor Peer Group in Class*	(3) *Prop. secular from Advisor Peer Group in Class*
1st-year courses with more than one section identified			
Proportion Islamic school peers	0.002***	-0.001	-0.006***
	(0.000)	(0.001)	(0.002)
Proportion Christian school peers	0.000	0.008***	-0.003
	(0.001)	(0.001)	(0.002)
N	67,785	67,785	67,785
All courses taken in all years			
Proportion Islamic school peers	0.008***	-0.000	-0.005**
	(0.001)	(0.002)	(0.002)
Proportion Christian school peers	-0.000	0.020***	-0.015***
	(0.000)	(0.003)	(0.003)
N	413,004	413,004	413,004

Notes: Each column represents a different course-level regression. Sample includes all first time entering students from the academic years 2002 to 2017. Estimated coefficients in the table are derived from OLS regressions using Equation (2). All regressions include department fixed effects, year fixed effects as well as student and advisor controls. Student controls include gender, Verbal and Math SAT scores as well as legacy status. Advisor controls include gender and academic rank. Treatment variables are standardized. Standard errors are clustered by peer group and reported in parentheses.
*** p <0.01 ** p <0.05 * p <0.1.

Table B3: Effect of Pooled Religious Diversity on First Year GPA

	(1) *First Year GPA*	(2) *First Year GPA*	(3) *First Year GPA*
Different relative to similar peers	0.024***	0.028***	0.033***
	(0.007)	(0.008)	(0.009)
Department Fixed Effects	Yes	Yes	No
Year Fixed Effects	Yes	Yes	No
Department Linear Trend	Yes	Yes	No
Department-Year Fixed Effects	No	Yes	Yes
Advisor Fixed Effects	No	Yes	Yes
Student Controls	Yes	Yes	Yes
Advisor Controls	Yes	No	No
Peer Quality	No	No	Yes
Peer Gender	No	No	Yes
Peer Language	No	No	Yes
Peer Socioeconomic Status	No	No	Yes
N	12,576	12,576	11,523

Notes: Sample includes all first time entering students from the academic years 2002 to 2017. Treatment is defined as the proportion of peers that are not from students' high-school background, i.e pooled peer diversity and regressions are run using OLS. Student controls include gender, Verbal and Math SAT scores as well as legacy status. Advisor controls include gender and academic rank. Treatment variables are standardized. GPA outcomes are standardized. Standard errors are clustered by peer group and reported in parentheses. *** p <0.01 ** p <0.05 * p <0.1.

Table B4: Effect of Religious Diversity on Instructor Religion during First Year (Robustness Check)

	Instructor Same Religion as Student
Students from secular schools	
Christian relative to secular school peers	0.009
	(0.008)
Islamic relative to secular school peers	0.000
	(0.008)
Students from Christian schools	
Secular relative to Christian school peers	0.008
	(0.010)
Islamic relative to Christian school peers	0.012
	(0.013)
Students from Islamic schools	
Secular relative to Islamic school peers	0.008
	(0.014)
Christian relative to Islamic school peers	0.015
	(0.021)
N	15,933

Notes: Sample includes course level data on students in their first year during the academic years 2012 to 2017. Estimated coefficients in the table are derived from course-level OLS regressions using Equation (2). All regressions include advisor fixed effects and department-by-year fixed effects as well as student controls. Student controls include gender, Verbal and Math SAT scores as well as legacy status. The outcome of interest is a binary outcome for whether students and instructors are from the same religion. Treatment variables are standardized. Standard errors are clustered by peer group and reported in parentheses. *** p <0.01 ** p <0.05 * p <0.1.

Table B5: Effect of Religious Diversity on Instructor Value Added

	(1) *Instructor Value Added*	(2) *Instructor Value Added*
Students from secular schools		
Christian relative to secular school peers	-0.0008	-0.0028
	(0.0016)	(0.0017)
Islamic relative to secular school peers	-0.0002	-0.0013
	(0.0013)	(0.0012)
Students from Christian schools		
Secular relative to Christian school peers	-0.0001	0.0026
	(0.0019)	(0.0019)
Islamic relative to Christian school peers	-0.0006	0.0009
	(0.0023)	(0.0023)
Students from Islamic schools		
Secular relative to Islamic school peers	0.0005	-0.0024
	(0.0035)	(0.0038)
Christian relative to Islamic school peers	0.0023	-0.0019
	(0.0043)	(0.0044)
Department Fixed Effects	Yes	No
Year Fixed Effects	Yes	No
Department Linear Trend	Yes	No
Student Controls	Yes	Yes
Advisor Controls	Yes	No
Department-by-Year Fixed Effects	No	Yes
Advisor Fixed Effects	No	Yes
N	36,743	36,743

Notes: Sample includes course level data on students in their second and third year during the academic years 2012 to 2017. Instructor value added is estimated using students' standardized course grades. Controls for value added estimation include: individual, class, and department-year cubic polynomials of verbal and math SAT scores; department-by-year fixed effects; advisor-by-year fixed effects; legacy status. Estimated coefficients in the table are derived from course-level OLS regressions using Equation (1). Treatment variables are standardized. Standard errors are clustered by peer group and reported in parentheses. *** p <0.01 ** p <0.05 * p <0.1.