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. We find that exposure to peers from different religious backgrounds increases Muslim students' enrollment in classes with non-Muslim instructors, suggesting that contact improves openness towards members of other religions. Inter-religious contact also impacts students' academic performance. We show that while exposure to peers from non-Islamic high schools increases Muslim student GPA, exposure to peers from Islamic backgrounds reduces the GPA among 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. Diversity in college is also 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. This paper aims to fill these gaps in the literature.

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

[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.

enrolled at the American University of Beirut (AUB), a private secular 4-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 inter-religious interactions. 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. As such, we define a peer group as all students matched to the same advisor. Second, while AUB is a secular university, it does attract 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.

We examine how college students' social behavior and academic performance are affected by exposure to peers who attended a different type of high school. To identify causal effects, we leverage the random assignment of students to peer groups. Intuitively, our identifica-

tion strategy compares students from a specific type of high school who are observationally similar, but are randomly exposed to varying proportions of peers from different religious schools. Our main outcomes of interest are student performance, as proxied by first-year GPA and student behavior towards members of other religions.

As a measure of student behavior, 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.

Religious contact in our setting may change instructor choice in two ways. Students may be more (less) willing to take courses with different-religion instructors if their peer interactions make them more (less) open towards other religions in general. It is also possible that students are more (less) likely to follow recommendations from different-religion peers on which instructors to choose, which indicates increased (decreased) openness to their peers. Under both scenarios, we view instructor choice as an important measure of students' openness towards members of other religions, especially since professors have a significant amount of discretion and authority over students. Furthermore, research from psychology indicates that children prefer to learn from teachers whom they trust, and favor instructors from similar backgrounds (Chen, Corriveau and Harris, 2013). 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 students are 1.6 percentage points less likely to take courses with instructors who have distinctively Muslim names, due to being matched to a one standard deviation higher proportion of secular versus Islamic 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 10 percent of a standard

deviation increase in their first-year GPA when matched to a one standard deviation higher proportion of Christian versus Islamic peers. This effect is long-lasting, as we document a significant and comparable improvement in their GPA upon graduation. Conversely, we show that students from secular schools perform somewhat worse (3.6 percent of a standard deviation) when exposed to a higher proportion of peers from Islamic as opposed to secular high schools, but no effects are detected for students from Christian high schools. This negative effect on secular students' GPA is 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., Islamic students in our setting) adversely impacts the academic performance of natives or the majority group (i.e., secular students in our setting) (Gould, Lavy and Paserman, 2009; Ballatore, Fort and Ichino, 2018).

We run various tests to substantiate that our effects are due to religious interactions. First, we show that our main estimates are unchanged when we control for peer group characteristics that are correlated with both high school type and outcomes of interest. These include controls for peer groups' academic ability, high school language of instruction, gender composition as well as socioeconomic background. This is consistent with the religious aspect of high schools, rather than other factors, driving our estimates. Second, we show that inter-religious contact does not predict the quality of chosen instructors, as proxied by value-added measures. This highlights that instructor religion is independent of instructor quality, which provides further evidence that our key outcome of interest is capturing a meaningful change in students' views towards other religions.

Third, we conduct heterogeneity analysis based on the extent of religious diversity in students' high school locations or districts. Most districts in Lebanon are homogeneous as they are dominated by one religious group. The few non-homogeneous districts are dominated by a small number of large religious groups and have experienced some of the most major and devastating conflicts during the Lebanese civil war—many of which involved mass killings of civilians. These districts still experience sporadic episodes of inter-religious violent clashes. Within non-homogeneous districts, religious groups are segregated into different towns or neighborhoods. As such, most individuals coming from either homogeneous or non-homogeneous districts in Lebanon have likely never had prolonged meaningful interactions with members of other religions. However, one key difference is that in non-homogeneous districts, the existence of other religious groups is more salient and visible, even if limited interactions occur. 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.

In line with these predictions, we find that our main positive effects on instructor choice and academic performance are concentrated among Islamic students whose high schools are located in non-homogeneous districts. In other words, students who benefit most from intergroup contact are those coming from religiously homogeneous schools that are located in the most polarized or conflict-prone areas in Lebanon i.e., those who likely have the most negative views towards other religions prior to their university peer interaction. The fact that our effects depend on the religious diversity in students' high school districts is consistent with the premise that it is the religious or cultural aspect of the peer interaction that is driving our results. The findings from our heterogeneity analysis also emphasize the important role that universities play in fostering positive intergroup contact even in the most polarized and conflict prone regions.

Our paper provides new causal evidence on how religious diversity shapes college students' academic and behavioral outcomes. Our findings thus relate to a literature which empirically studies whether intergroup contact in higher education promotes positive attitudes towards other groups. Previous studies examine interactions between college peers from different races and find that exposure to black peers improves white students' racial attitudes, and increases interracial interactions and friendships (Van Laar et al., 2005; Boisjoly et al., 2006; Marmaros and Sacerdote, 2006; Carrell, Hoekstra and West, 2019; Corno, La Ferrara and Burns, 2021).[2] Our paper is distinct from this literature as it is the first to focus on *inter-religious* contact in an educational context—as opposed to contact between different races. This is an important distinction as the impacts of inter-religious contact may be different than interracial interactions, especially in societies with deep divisions, segregation and a history of armed conflicts. Indeed, 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). Furthermore, our findings can speak to the debate of whether higher education can liberalize religious beliefs and reduce inter-religious tensions by promoting openness towards other religions.

In doing so, our paper also relates to several strands of literature within economics of religion. The first is a broad body of work examining how religion shapes individual behavior and attitudes. Seminal studies have looked at the impact of religious affiliations

[2]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).

and practices on economic attitudes, well-being and individual characteristics such as work ethic (Guiso et al., 2003; McCleary and Barro, 2006; Campante and Yanagizawa-Drott, 2015). Our paper is closer to Clingingsmith, Khwaja and Kremer (2009) who find that participation in the hajj—a pilgrimage where Muslims interact with other Muslims from different countries—raises religiosity but also improves tolerance towards other religions. Our paper complements theirs by showing that interactions with individuals from different religious backgrounds also increase openness towards other religions.[3]

The second is a literature that seeks to understand the relationship between religion and education. Studies have focused on how individuals' level of education affects religious beliefs (Glaeser and Sacerdote, 2008; Hungerman, 2014; Gulesci and Meyersson, 2015; Becker, Nagler and Woessmann, 2017; Mocan and Pogorelova, 2017; Cesur and Mocan, 2018) and whether religious education impacts religiosity (Arold, Woessmann and Zierow, 2022). However, none of these studies have looked at the role of religion in higher education or at interactions between students from different religious backgrounds.

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 relates to 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, ethnicity and socioeconomic background (Hoxby, 2000; Ballatore, Fort and Ichino, 2018; Corno, La Ferrara and Burns, 2019; Rao, 2019). 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.

The rest of this paper is organized as follows. Section 2 describes the institutional setting. Section 3 introduces the data that we use. Section 4 outlines the identification strategy. Section 5 presents the main results and robustness checks. In section 6, we discuss the

[3]A couple of recent studies break new grounds by implementing randomized controlled trials to examine contact between Christians and Muslims. Scacco and Warren (2018) find that assigning Nigerian men to religiously mixed or homogeneous computer training classes does not impact survey- and lab-based measures of prejudice. Mousa (2020) shows that randomly assigning Iraqi Christian soccer players to mixed-religion teams improves their on-the-field behavior towards Muslim teammates, but that the benefits of contact in soccer do not extend to other social settings. While these studies make important contributions, they differ from our paper in two ways which preclude them from answering the questions we are interested in. First, our goal is to understand how naturally occurring prolonged interactions between individuals from different religious backgrounds—where researchers have no control over the nature of contact—shape their behavior towards each other. This could explain why we document an increase in openness towards other religions, while other studies find limited effects on attitudes. Second, and unlike our paper, this previous work does not aim to explore the role of religion in education.

mechanisms driving our findings and we conclude in section 7.

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. Given that a large share of the Lebanese population was Muslim, this led to persistent tensions between Christians and Muslims. 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 a growing 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, which sought to bring about national cohesion. The agreement maintained the pre-war power-sharing system, but shifted the balance of power away from Christians. Specifically, 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, the Taif Accord failed to address the roots of the conflict such as the sectarian division of power, allowing for the persistence of tensions between religious groups in the post-war era (Haugbolle, 2011).

In addition to residual tensions from the Civil War, 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 and limits the development of a national identity. 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 politically loyal to the Vatican and France" (Baytiyeh, 2017).

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 as such, inter-religious marriages in Lebanon are still rare.[4] Additionally, social services including schooling and health care are widely provided by political parties that represent the different religious groups. Cammett and Issar (2010) estimate that in 2005, approximately 50% of schools were private, and only 5 out of the 160 Lebanese hospitals as well as 10% of registered health care clinics were operated by the government. Around half of privately-owned schools, hospitals and clinics are run by political parties with religious affiliations or by religious charitable organizations.

2.2 Lebanese High Schools

Prior to enrolling in college, students in Lebanon spend three years in high school, and around 53% attend private high schools (World Bank, 2018). While all public schools are secular, private institutions provide either secular or religious education. 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 for the teaching of catechism, hold masses during school hours (see Figure 1a) and organize spiritual activities. For example, it is common for Christian schools to have students attend a yearly one-day spiritual retreat held in a monastery. Many schools also host and encourage their students to participate in Christian youth movements, which typically meet after school hours.[5] Due to the fact that they are the

[4]Family laws are quite different based on religious affiliation. For example, while Sunni and Shi'a Muslims have the right to divorce, Catholics are prohibited from divorcing.

[5]An example is the "Mouvement Eucharistique des Jeunes" (or MEJ), an international Catholic youth

oldest schools in Lebanon, some Christian schools enroll both Christian and Muslim students. However, the proportion of Muslim and Christian students enrolled at these schools depends on the demographic composition of each school's location. For example, a Christian school in Mount Lebanon, a predominantly Christian district, will have an overwhelming majority of Christian students. In contrast, a Christian school in Beirut, a religiously diverse city, is more likely to have a mix of Christian and Muslim students. 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. For example, Figure 1b shows a student officially welcoming French President Emmanuel Macron during his September 2020 visit to Lebanon, on behalf of one of the leading Lebanese Catholic schools.

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 only major network of Islamic schools in Lebanon.[6] Since the mid-80s, the Iran-backed political party and militant group Hezbollah grew 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 'initial' ideology was 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.[7] It is considered by many Lebanese to be a resistance movement against Israeli occupation. The U.S. department of Justice designated it as a terrorist organization in 1997, and the European Union added its military wing to its list of terrorist groups in 2013.
In our main sample, 42% of Islamic schools are Sunni and 58% are Shi'a—and the vast majority of the latter schools are affiliated with Hezbollah or its allies. Similar to Christian schools, Islamic schools devote part of their curriculum for the teaching of their religion, as they provide Quran reading courses and hold prayers during the school day (see Figures 1c and 1d). 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 (see Figure 1e). Islamic schools' student body is religiously homoge-

movement that is hosted by several leading Catholic schools in Lebanon such as the Collège Notre-Dame de Jamhour and the Collège Sainte Famille Française.

[6]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.

[7]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.

neous, 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 (see Figure 1f).

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 culture.

In summary, schools in our setting mainly differ in whether they provide a religious education, the type of ideology they propagate, and the religious diversity of their student body. Secular schools provide no religious education, are westernized and are the most religiously diverse. Christian schools also expose students to Western culture but are less diverse and devote part of their curriculum for the teaching of catechism. Islamic schools are homogeneous since they predominantly cater to Muslim students and they disseminate non-Western ideas as well as the teachings of Islam.

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, which is either English or French. Schools can also differ in the socioeconomic and gender composition of their student body. In section 6.1, we show that our main effects are unchanged when we control for peer group characteristics that are potentially correlated to high school type and the outcomes of interest, such as their ability, language of instruction, socioeconomic and gender composition. 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.[8]

[8]While course content is set by the government, the manner in which history and civic education courses are taught can vary across schools. This is because the conflict between religious groups resulted in major disagreements over certain historical events and fundamental aspects of Lebanese identity. For example, when covering the history of Lebanon under Ottoman rule, teachers in some Sunni Islamic schools emphasize the strengths of the Ottoman Empire. On the other hand, Christian school teachers present that period in a less favorable light by highlighting the Ottoman Empire's atrocities such as its World War I embargo of Mount Lebanon—a predominantly Christian area—which resulted in a three-year famine.

2.3 The American University of Beirut and Peer Formation

Our analysis focuses on students who enroll in their first year at AUB. The vast majority of students in Lebanon are required to pass a national common exam at the end of their last year in high school in order to obtain their baccalaureate degree. Students with a baccalaureate degree enroll in their first year of university as sophomores.[9] 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 enroll in the major they are admitted to at the beginning of their first year of college (i.e., before the start of the Fall semester). Once they enroll in their major, they are immediately assigned to an academic advisor who is a full-time faculty member in their respective 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.[10] Administrators, within each faculty, receive two separate lists of students and advisors from each academic department. They then randomly assign students to their advisors. Specifically, for each academic department, they first sort students by their last name or their ID and then assign the first student to the first advisor on the advisor list, the second student to the second advisor, and so on. The average advisor group contains 63 students from various years (Sophomores, Juniors and Seniors) who share the same major.

Students typically have the same advisor for the entire sophomore 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 develop a plan of study—i.e., help them pick courses and develop a schedule—that will allow them to meet the requirements for graduating from their major, (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

[9]Students who enroll in Lebanese universities as freshmen typically come from high schools that follow the US education system and curriculum. However, these students are a minority among Lebanese college students.

[10]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.

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.[11] 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.[12] 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 sophomore students, the group and individual advising orientation sessions are typically their first interactions with other students at the university. 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 sophomore year—a result that we show to be true in section 5.2.

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 student-level information on course grades, semester GPA, major, gender, class (Freshman, Sophomore, Junior, Senior), legacy status, high school name and location, year of birth and SAT scores. We classify high schools into secular, Christian or Muslim schools following the official classification provided by each school. These data also contain information on academic advisors that students are matched to, such as their faculty rank, department, and gender. Our data initially included 19,087 students who entered AUB as sophomores between the academic years 2001-2002 and 2016-2017.[13] We exclude all students who have missing baseline covariates and those whose entire peer group have missing key characteristics. Additionally, we exclude excessively low-enrolling 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 12,590 students who entered AUB as sophomores between the academic

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

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

[13] 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.

years 2001-2002 and 2016-2017. Over this entire period, students are matched to 219 distinct advisors during their sophomore year. On average, each advisor serves for 3 years, resulting in the *random* formation of 666 distinct peer groups throughout this period.

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 more or less stable for students coming from different high school backgrounds. The average Math SAT score for all students in our sample is 649 points. Compared to the scores announced by the College Board in 2019, this corresponds to the 83rd percentile in the math portion of the SAT exam.[14] 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. Approximately 24% of all students are legacy admits, with that number being 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 77.72 out of a possible 100 points with a standard deviation of 8 for all students in our sample. Further, we find no meaningful differences in GPA across school background type as students from all religious backgrounds perform roughly similar in their first year at AUB. Out of all students who enter the university as sophomores, 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 manage to graduate on time, but, only 40.9% 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%). This indicates that students from Islamic school backgrounds have more trouble graduating on time, than graduating in general. Finally, GPA at graduation is 79.7 points for all students in our sample with a standard deviation of 6; this does not vary significantly across groups.

[14] https://collegereadiness.collegeboard.org/pdf/understanding-sat-scores.pdf

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 (i.e., associate or full professors), 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 respectively.[15] The average proportion of secular school peers for students in our sample is 59.3% with a standard deviation of 9.5 percentage points. Additionally, the average proportion of Christian school peers stands at 33.4% with a standard deviation of 9 percentage points, while the average proportion of Islamic school peers that students face is 7.2% with a standard deviation of 4.6 percentage points. 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 peers from a given religious school background. Specifically, Panels A through C of Figure 2 respectively show the distribution of these standard deviations for the proportions of secular, Christian, and Islamic high school peers. The next section discusses how we leverage this variation for identification.

4 Identification Strategy

Our empirical strategy leverages the fact that sophomore 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 section 5.1—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

[15] To clarify how treatment is constructed, let us take a hypothetical scenario where a secular school student is in a peer group with 11 people (including his or herself). Further, assume this student is matched with 5 other secular school students, 4 Christian school students, and 1 Islamic school student. Using our leave-one out treatment definition, the proportion of secular school peers this student is matched to will be $\frac{5}{10}$, the proportion of Christian school peers $\frac{4}{10}$, and the proportion of Islamic school peers $\frac{1}{10}$.

advising group they are allocated to within their department during the first semester at university. Specifically, we make full use of our context to provide for a nuanced understanding of how students from Islamic, Christian and secular backgrounds are differentially affected by interactions among one another in a neutral venue. Formally, we run the following regression model for all incoming sophomore students:

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

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. To ease interpretation, all our proportion measures are standardized by year throughout. Additionally, we include interaction terms for all indicators and proportion measures.

We include department fixed effects λ_d throughout 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 ($\theta_d year_t$) to control for any unobserved department level changes over time. The vector X_i' includes a set of student controls that contains information on students' gender, SAT scores, GPA in the final 2 years of high school and legacy admission status as well as birth year fixed effects. The vector A_a' controls for advisor level variables including academic rank and gender. Our simplest specification includes only these variables. Due to the random nature of student-advisor assignment—within a department—our peer match effects can be interpreted as causal. As a robustness check, we also report estimates from more saturated specifications that include advisor fixed effects and department-by-year fixed effects.

Our main objective is to understand how religious school background match differentially affects students from various religious backgrounds i.e., the effects of religious diversity. As reported in section 2.2, secular high schools have the most diverse student body in terms of religious composition, mainly Christian and Muslim students from various sects. This is followed by Christian schools, which are mostly but not exclusively composed of Christian

students and finally Islamic schools which are exclusively composed of Muslim students. We summarize these effects through six main parameters of interest representing the three school types: (1) For students coming from secular high schools, β_3 and β_4 capture the effects of religious peer diversity for secular students. Specifically, β_3 measures the effect of being matched to peers from Christian high schools relative to similar peers, i.e. those from secular schools and β_4 estimates the impact of matching with Islamic peers, relative to secular ones. (2) For students who initially 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). Finally, $-\beta_4 - \beta_8 + \beta_3 + \beta_7$ summarizes the effects of peer diversity for Muslim students matched with Christian as opposed to Muslim peers. ϵ_{idat} represents our error term. Standard errors are clustered at the peer group-year (treatment) level throughout to account for correlations among students exposed to the same advisor and peer group in the same year.

5 Results

5.1 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.[16]

Columns 1, 2 and 3 of Table 2 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 2 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 2 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 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.[17] The results of this test are summarized in panel A of Table 3. We only reject the null hypothesis of random assignment in 3 out of 871 tests of uniformity. Finally, we regress our constructed empirical

[16] 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.

[17] 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.

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 3 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.

5.2 First Stage: Evidence on Peer Interactions

The random allocation of students to advisors results in the formation of early university peers for students matched to the same initial advisor prior to the start of their first semester at university. Our empirical strategy exploits the random assignment of students to these newly formed peer groups. The average peer or advisor group in our setting contains 63 students. While this is slightly larger than those found in some studies looking at classroom peer effects, it is still significantly smaller than other studies that have found sizable peer effects using variation across large cohorts of school students (See for e.g., Hoxby, 2000; Lavy and Schlosser, 2011; Mouganie and Wang, 2020). Additionally, Figure 2 illustrates that peer group formation in our setting results in substantial variation in treatment, i.e., religious peer exposure.

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". As detailed in section 2, the advising process results in numerous channels for potential early peer interactions among students matched to the same advisor. These interactions can be outside the classroom, facilitated by initial advising practices that group students from the same advising group together. Additionally, because advisors tend to give similar advice on course sequence and selection, then another potential channel for peer group interactions is inside the classroom. 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. This sorting may be due to the formation of friendships while in the same peer group or because advisors push their students to take similar classes. We provide formal evidence of classroom sorting by showing that students exposed to a higher proportion of secular or Islamic or Christian school peers within their advisor group are more likely to take courses with secular or Islamic or Christian students from that same peer group respectively. Formally, we run the following regression:

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

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.[18] 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.[19] α_3 and α_4 are our main parameters of interest representing the effects of a change in the proportion of Christian and Muslim students in peer group a in year t relative to secular peers respectively. Additionally, to ensure that the effects we find are not driven by the mechanical correlation of having more students from a certain background in a department in a given year, we include D'_{dt}, a vector representing the leave-one out proportion of Islamic and Christian students within a department-year. We include department fixed effects λ_d throughout since randomization occurs at the departmental level and an academic year fixed effect σ_t to control for unobserved changes across years. Standard errors are clustered at the peer group-year level (666 clusters) throughout to account for correlations among students exposed to the same advisor and peer group in the same year.

Results from this exercise are summarized in Table 4. Estimates from column (1) indicate that going from all secular peers to all Islamic peers increases the likelihood of taking a class with Islamic students from that same peer group by 7.8 percentage points, regardless of students' school background type. Importantly, we find no statistical link between having more Christian peers in an advisor group and the likelihood students take classes with Islamic peers from that same advisor group. Results reported in column (2) further indicate student sorting based on peer school background. Students exposed to only Christian school peers, as opposed to secular school peers, are 8.8 percentage points more likely to take classes with Christian school peers from that advisor group. 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.[20]

[18]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.

[19]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.

[20]Additionally, we show that these findings do not differ by student school type. Appendix Table A1

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.[21] To alleviate concerns over this, we conduct two robustness checks. First, we rerun our analysis after dropping all cases where we cannot identify at least two sections for a given course. These results are presented in the top panel of Appendix Table A2. Second, in the bottom panel, we look at upper-year courses (as opposed to only first-year courses) since they generally have, at most, one or two sections—rendering this issue less severe.[22] Importantly, we find that our estimates on classroom peer interactions are robust to restricting the data to courses where we can identify more than one section, and to using data from only upper-year coursework.

5.3 Effects on Academic Performance

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 5 shows estimates from our main 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.[23] The presentation of results in Table 5 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 5 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 5. 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

reports heterogeneous results by student school background and findings are similar.

[21]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, when in reality these peers may not have ever been in the same classroom. We must note that this misallocation issue is different than the mechanical association of having only one section for a class and many students in the same advisor group all pushed into that same class. Specifically, the latter scenario would still be a viable channel for interactions and evidence of a first stage.

[22]Students in their junior and senior years have more flexibility in terms of choosing their courses than sophomores—who typically have to take a specific number of required courses. As a result, there a fewer sections per course during the junior and senior years.

[23]Controls include student gender, SAT scores, legacy status as well as advisor gender and academic rank.

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 a one standard deviation increase in 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 5. To 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 9.5 percentage point (16 percent) decrease in secular peers from a mean base 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 (0.018) 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 (-0.016).

Finally, for students coming from Islamic schools—all of whom are Muslim students—being matched to a one standard deviation higher proportion of Christian as opposed to Muslim peers positively affects grade performance by 10.1 percent of a standard deviation.[24] 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 Muslim students. Results from this exercise indicate that replacing one Islamic school peer with two Christian peers would result in approximately a 3.3 percent of a standard deviation increase in first year GPA for Muslim students.[25] We also find positive effects

[24]We also find positive but marginally significant effects for Muslim students matched to a higher proportion of secular versus Muslim peers.

[25]Our-back-of-the-envelope calculation proceeds as follows. First, we know that the average advising or peer group contains 63 students. On average, 33.4 percent of students in these groups are from Christian high schools (21 students) and 7.2 percent are from Islamic high schools (4.5 students). Additionally a one standard deviation increase in Christian school peers is equivalent to 8.8 percentage points, i.e. an increase in Christian peers from 33.4 to 42.2 percent or an additional 6 Christian school students. A one standard

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 Muslim students achieve academic gains when paired with peers from drastically different school environments.

We test the robustness of our main findings to the inclusion of advisor fixed effects. This allows us to control for any observable or unobservable features or behaviors of academic advisors that may correlate with the religious composition of our peer groups and students' first year GPA.[26] These results are presented in column 2 of Table 5. Our results are robust to the inclusion of advisor fixed effects, in line with the random assignment of students to peer groups. Indeed, all significant coefficients reported in column 1 remain so. In column 3 of Table 5, we present coefficients from our most stringent specification that includes department-year fixed effects and results remain largely similar.

In Table A7, we examine whether our main first-year GPA effects persist in the longer run. Column (4) of Table A7 reveals that impacts on GPA upon graduation are consistent with effects on first-year GPA. For Islamic students, we find a significant 0.097 standard deviations increase in graduation GPA from interacting with more Christian relative to Islamic peers. On the other hand, secular students see a 0.045 standard deviations reduction in their graduation GPA from having more Islamic versus secular peers. We mostly find no significant effects on other long-run outcomes such as dropout rates, 4-year and 6-year graduation rates. These results are discussed in details in Appendix D.

Taken together, our findings indicate that university students from secular high schools benefit 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. While it would be interesting to study how exposure to different versus similar "high school type" peers affect all students, such a specification ignores interactions across three major and vastly different social groups—which is necessary for a nuanced understanding of religious diversity in our context and many others. Nevertheless, in Appendix Table A3, 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

deviation increase in Islamic school peers is equivalent to 4.5 percentage points, i.e. an increase in Muslim peers from 7.2 to 11.7 percent or an additional 3 Muslim students. Roughly, this would mean that replacing 3 Islamic school peers with 6 Christian peers would lead to a 10.1 percent of a standard deviation increase in Muslim students' first year GPA. Thus, replacing 1 Muslim peer with 2 Christian peers, in an average peer group, would result in a $10.1 \div 3 = 3.3$ percent of a standard deviation improvement in Muslim students' first year performance.

[26] 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.

that, on average, students see improvements in their first-year GPA as a result of increased diversity.

5.4 Effects on Behavior: Instructor Religion

Having analyzed academic effects, we now turn to behavioral outcomes. In particular, we check whether religious diversity impacts students' likelihood of taking classes with instructors from similar religions. We view instructor choice as an important outcome measuring "openness" towards or a "willingness" to engage with other religions. This is because professors have a significant amount of discretion and authority over students. In particular, instructor choice may be due to direct behavioral changes on the part of students or because of recommendations from peers in the same advisor group. We view both of these pathways as stemming from positive or negative interactions with peers from different religions, and eventually measuring some degree of "openness" towards others. 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 students for course registration. Taken together, these make instructor choice a salient outcome of interest for students.

To conduct this analysis, we first acquired instructor names 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.[27] We then constructed a database of teachers' religion based on their full names. The final exam schedules contain information 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 percent of instructors to a particular religion, i.e. around 600 of the initial 1500 names found in our data. For the remaining names, we made use of four independent individuals from different sects and areas of Lebanon. In particular, we read out all remaining instructor names and had them respond with three choices: (a) Muslim, (b) Christian or (c) ambiguous. We matched instructor religion to one of these three choices when there was consensus among all four individuals surveyed. For cases where no consensus was reached, we list instructor religion as ambiguous. Using this two-step process, we identify approximately 40 percent of instructors as Christian, 36 percent as Muslim and 24 percent as religiously ambiguous, i.e. secular.

[27] No documented records exist for the pre-2011 period. Additionally, records were lost for the 2013-2014 fall semester and the 2014-2015 fall semester.

We match the newly constructed instructor religion identifier to our original data using course name, instructor gender and semester-year. For our analysis, we further restrict the data to faculty teaching second and third year courses.[28] This leaves us with a final sample of 43,167 identified course level observations for 6,840 students spanning the academic years 2011-2012 to 2017-2018.[29]

We then run student-course level regressions analogous to equation (1) using teacher religion as outcome.[30] In particular, our outcome of interest is a binary indicator that measures student and teacher religious match. For Islamic school students, we define the outcome as one when an instructor is Muslim and zero otherwise. For Christian school students, it is defined as one when instructors are Christian and zero otherwise. Finally, for secular students, we define outcome as one when an instructor's name is religiously ambiguous and zero otherwise. Table 6 summarizes findings from this exercise using two different specifications. Specifically, in column 1 of Table 6, 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 and advisor controls and department specific linear time trends. In columns (2) and (3), we present estimates using specifications that include advisor fixed effects and department-by-year fixed effects.

We find that students from secular school backgrounds are 0.8 percentage points less likely to take classes with religiously ambiguous, i.e. secular instructors, when they are faced with a higher proportion of Christian as opposed to secular school peers, as shown in column (1) of Table 6. However, this result is not robust to the inclusion of advisor or department-by-year fixed effects as shown in columns (2) and (3). In contrast, we find no evidence of instructor choice changes for secular students matched with a higher proportion of Islamic school peers for either 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 6, we show that being matched to a one standard deviation higher proportion of secular as opposed to

[28] We exclude first year coursework since the first semester registration occurs before students meet with their peers. We also exclude second semester courses, since the registration period for that semester occurs only a month after the beginning of the academic year, precluding students from having enough time to interact properly with their peers before making registration decisions. Finally, we exclude courses taken in the 4th year and beyond since most majors require three years to completion.

[29] 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.

[30] In these regressions, we cluster standard errors at the student level to account for repeated student observations.

Islamic school peers decreases the likelihood that Muslim 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 show in columns (2) and (3). Finally, we find no statistical evidence that Islamic students' instructor choice is affected when they are matched with a higher proportion of Christian as opposed to similar Islamic school peers, though the estimates in columns (2) and (3) are economically meaningful. Taken together, these findings indicate that religious diversity matters for Muslim 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 out-group.

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 A4 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

6.1 Ruling Out Factors Other Than Religious Diversity

So far, our results indicate that secular students' academic performance deteriorates when they are matched with Islamic rather than secular school peers. On the other hand, we find that Islamic students' performance improves when they are matched to Christian rather than Islamic peers. Additionally, Muslim students are more likely to take courses with non-Muslim instructors when exposed to dissimilar or diverse peers.

A natural question that arises is whether we can attribute these effects to cultural and religious aspects. Recall that our definition of a peer is based on the type of high school students attend—i.e., Islamic, Christian or secular school. It is thus possible that high school characteristics correlated with both high school religious type and academic outcomes may be driving our effects. It is also possible that instructor religion may be picking up other attributes of an instructor such as their quality. We run a series of robustness checks that show this is not the case in our setting.

We start by checking whether peer quality is driving the documented findings on first-year GPA and instructor religion. Descriptive statistics presented in Table 1 suggest little meaningful differences in academic ability across religious schools in terms of Mathematics SAT scores and first year GPA. This is not surprising as AUB is the most selective higher education institution in Lebanon and generally draws from the best set of high schools in the country.[31] Nevertheless, we formally check whether the average quality of peers in an advisor group is correlated with treatment and outcome and thus driving our main findings.

We do so by controlling for average peer group SAT math scores and interact this variable with student religious school background.[32] Importantly, various attributes make the mathematics SAT a good control for initial peer ability. 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. 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 as shown in Figure A1. Results presented in column (1) of Table 7 indicate that the inclusion of peer quality in regression equation (1) does not change estimates on first-year GPA in a meaningful way. Importantly, our previously documented effects on first-year GPA remain statistically significant and similar in magnitude. Specifically, we find that secular students experience a 3.7 percent of a standard deviation decrease in GPA when matched with Islamic as opposed to secular school peers. Additionally, Islamic school students matched to a one standard deviation higher proportion of Christian, relative to Islamic, peers experience a 0.11 SD increase in first year GPA. In column (1) of Table 8, we also show that the addition of peer quality controls has no meaningful impact on the documented findings regarding teacher religion. Specifically, we still find that students from Islamic schools are less likely (1.6 percentage points) to take classes with Muslim teachers when matched with dissimilar secular school peers.

Next, we examine whether peer gender composition is driving our findings. For example, perhaps an increase in Islamic peers is correlated with the likelihood of having more male peers which may be driving our effects on GPA and instructor choice. We check for this, in column 2 of Tables 7 and 8, by re-estimating treatment after adding separate controls for the proportion of female peers in students' advisor groups. Our findings on first year GPA and instructor religion are robust to the addition of these controls indicating that our effects

[31] Secular and Islamic school students score very similarly in terms of average mathematics SAT scores and first year GPA. Christian school students are approximately 0.01 standard deviations higher than those two groups in terms of academic ability.

[32] Specifically, we do so by running regression equation (1) with the addition of the following terms: $\gamma_1 peerQuality_a + \gamma_2 Islamschool_i * PeerQuality_a + \gamma_3 Christschool_i * PeerQuality_a$

are not driven by changes in peer gender composition.

To investigate further channels, we hand collected data on language of instruction and yearly tuition from each high school's website. In cases where this information was not publicly available, we contacted schools directly. We first explore whether differences in high schools' language of instruction are driving our results.[33] For example, if Christian or secular schools are more likely to teach in French, then perhaps our effects may be driven by language. To test for this, we first collect data on the main language of instruction for each school (in addition to Arabic). We then construct a dummy that is equal to 1 if a school teaches in French and 0 otherwise (English). Finally, we separately control for the proportion of peers who were taught in French within each advisor group and re-run equation (1). Results presented in Tables 7 and 8 indicate that accounting for peer language differences across advisor groups has no meaningful effect on our main findings.

Another important dimension that could be correlated with school type is socioeconomic status. For example, if Christian schools contain a higher proportion of students from wealthier backgrounds, then this would mechanically mean that individuals exposed to a higher proportion of students from Christian schools would be exposed to wealthier peers.[34] We next look at whether the average high school tuition of peer groups affects findings.[35] Results presented in column (4) of Tables 7 and 8 are in line with those found in previous columns and indicate that our main effects are not driven by peers' socioeconomic status, as proxied by school tuition.

Beyond the interpretation of our treatment, it is also possible that instructor religion may pick up other attributes of an instructor such as their quality. We provide evidence showing that our treatment has no effect on instructor quality. We do so by first using a standard teacher VA model to predict instructor quality (Chetty et al. 2014).[36] Importantly, we then show that exposure to peers from different religions has no meaningful effect on being

[33]Recall, schools in Lebanon teach in either Arabic and English or Arabic and French. For schools teaching in Arabic and English, French is taught as a third language but at a lower level. Similarly, for those teaching in Arabic and French, English is taught as a third language but at a lower level.

[34]We must note though that AUB is an expensive private university that is comprised of students who are, for the most part, significantly wealthier than most of the Lebanese population.

[35]For schools with no website, we emailed or contacted administrators to acquire information on their tuition. However, we were not able to get tuition for all schools. To account for missing tuition, we reran our specification using dummy variables as opposed to a continuous variable for tuition. Specifically, we created a dummy variable equal to one for schools with a tuition greater than 9,000,000 LL or $6000 (median) and zero for those below. Additionally we created another dummy for missing tuition. We then control for the proportion of both dummy variables within the same advisor group, interacted with students' school background. The results remain the same suggesting that missing tuition is not creating any bias.

[36]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.

matched with higher or lower value-added instructors for students who attended Christian, Muslim or secular high schools. These results are presented in Table A5 where we document reasonably precise insignificant impacts of religious diversity on teacher value-added. This is in contrast to our main findings documenting that religious diversity is predictive of instructor religion. This demonstrates that the operating channel through which students are choosing an instructor of a different religion is independent of that instructor's quality. Importantly, this further helps alleviate concerns that our treatment effects are operating through a peer ability channel as opposed to a religious or cultural one.

Finally, an important advantage of our setting is that all high school students in Lebanon must follow a similar curriculum, for the most part. That is mainly because students must sit for the national Lebanese Baccalaureate exit exam at the end of high school. As a result, we can additionally rule out major curriculum differences across school types as a driving factor. Put together, results from this section indicate that our documented findings on students' first year GPA and instructor choice are not driven by observable differences in peer ability, gender composition, language or socioeconomic status. This is consistent with the premise that religious school background peer match is mainly capturing the effects of religious culture or attitudes.

6.2 Religious Diversity Prior to College Interactions

Results from the previous section indicate that high school characteristics other than their religious or cultural aspect are not driving our main effects. We next conduct some heterogeneity analysis based on the degree of religious diversity students are exposed to prior to their peer interactions—as measured by the level of diversity in students' high school location. The idea here is that *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.

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*.[37] Lebanon is characterized by very strong residential segregation along religious lines. Approximately all

[37]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.

districts have the vast majority of their registered voters belonging to one religion. Across districts, the median share of voters who belong to the same religious majority is 82%. 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.[38,39] We classify all other districts as religiously homogeneous. One of the main differences between these two types of districts is that homogeneous districts are almost entirely dominated by one religious group, while non-homogeneous districts are dominated by a few large religious groups.[40]

Importantly, our non-homogeneous districts witnessed the most intense and violent inter-religious conflicts during the 1975-1990 Lebanese civil war. Many of these conflicts also heavily targeted civilians.[41] These districts still experience sporadic violent clashes between different religious groups. For example, on October 14, 2021, armed clashes erupted between Christian and Shi'a Muslim civilians in the non-homogeneous district of Baabda, leaving 7 people dead and 30 injured (L'Orient-Le Jour, 2022). Another important characteristic of these districts is that while they are composed of several religious groups, their residents typically segregate along religious lines in different neighbourhoods or towns. As such, most students from either homogeneous or non-homogeneous districts have likely not had meaningful positive interactions with members of other religions prior to coming to AUB. However, a key difference is that in non-homogeneous districts, the existence of other religious groups is more salient and their residents are more likely to have recently experienced or witnessed inter-religious conflict.[42]

Tables 9 and 10 respectively report heterogeneous effects for our two main outcomes,

[38]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%.

[39]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.

[40]For example, the two most homogeneous districts in Lebanon are Nabatie where 95.37% of registered voters are Shi'a Muslims, and Keserwan where 98% are Christians. On the other hand, in Beirut 2, one of our non-homogeneous districts, around 42% of registered voters are Christian, 26.5% are Shia and 31.5% are Sunni.

[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). Another example is the 1980s Mountain War, one of the most important sub-conflicts of the Lebanese civil war, took place in Chouf and Aley between Christian and Muslim sects. The 1982 Sabra and Shatila massacre, a mass killing of up to an estimated 3,500 Palestinian and Lebanese Shi'a civilians byaxa Christians, took place in the district of Baabda.

[42]This is consistent with previous evidence showing that the salience of—but not interaction with—other religious groups leads to negative sentiment (Colussi, Isphording and Pestel, 2021).

first-year GPA and instructor religion. Column (1) reruns our main analysis but restricts the sample to students whose high schools are located in non-homogeneous districts, while Column 2 comprises students whose high schools are in homogeneous districts. We do not impose any restrictions on the location of peers' high schools. In the overall sample, we document that intergroup contact reduces secular students' GPA and likelihood of taking courses with secular teachers—although the latter effect is not robust to all specifications in the overall sample. Column (2) of Tables 9 and 10 show that these effects are concentrated among secular students' whose high schools are located in homogenous districts. Specifically, they experience a 4.7 percent of a deviation drop in first-year GPA and a 1.2 percentage points decrease in the likelihood of taking courses with secular teachers.[43] The results we find for secular students are important as, ex-ante, it is not clear why secular students would be affected by inter-religious contact at university since they come from secular high schools that are typically diverse. Our heterogeneity analysis shows that the overall effects are driven by secular schools located in the more homogeneous districts. This suggests that these secular schools are either not very religiously diverse or are diverse but may not be providing an environment that fosters religious tolerance.

For Muslim students, the previously documented positive GPA and behavioral effects are concentrated among students whose high schools are located in non-homogeneous districts. Specifically, Islamic school students whose high schools are in non-homogeneous districts experience a 13.7 percent of a standard deviation increase in their first-year GPA when exposed to a one standard deviation higher share of Christian peers (relative to Islamic peers). They are also 3.1 percentage points less likely to take courses with Muslim teachers due to being matched to a one standard deviation higher proportion of secular versus Muslim peers, In contrast, no significant GPA or behavioral effects are detected for Muslim students coming from homogeneous districts.

To summarize, our heterogeneity analysis reveals that intergroup contact has positive effects on Islamic students coming from non-homogeneous districts. These schools enroll

[43]We typically interpret a decrease in the likelihood of taking courses with same-religion instructors as a positive effect of intergroup contact on students' behavior towards other religions. However, this specific result could also be interpreted as a negative effect if these secular students are coming from homogeneous districts with a Christian majority and interactions with more Christians peers at the university makes them more likely to take courses with Christian teachers (as this would indicate a decrease in openness towards other religions). In Table A6, we show that this is not the case. Specifically, we split our sample of homogeneous districts into those that are dominated by Muslims in Column (1) and those that are dominated by Christians in Column (2). We find that secular students coming from homogeneous Muslim districts are 1.6 percentage points less likely to take course with secular instructors when matched with more Christian peers, but 1.2 percentage points more likely to take courses with Christian teachers. This result is consistent with our findings for Islamic students which indicates that intergroup contact improves openness towards other religions.

exclusively Muslim students and are located in the most conflict-prone districts in Lebanon. As such, this result emphasizes 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 backgrounds 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 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 non-religiously homogenous 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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A Figures

Figure 1: Religious Schools' Activities



(a) Mass held at Christian school



(b) Christian school student greeting French President Macron



(c) Female students at Sunni school praying in Mosque



(d) Male students at Sunni school praying in Mosque



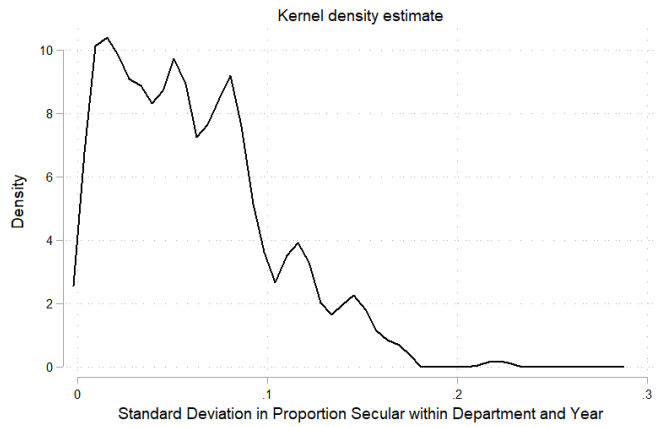
(e) Shi'a school students celebrating Ayatollah Khamenei



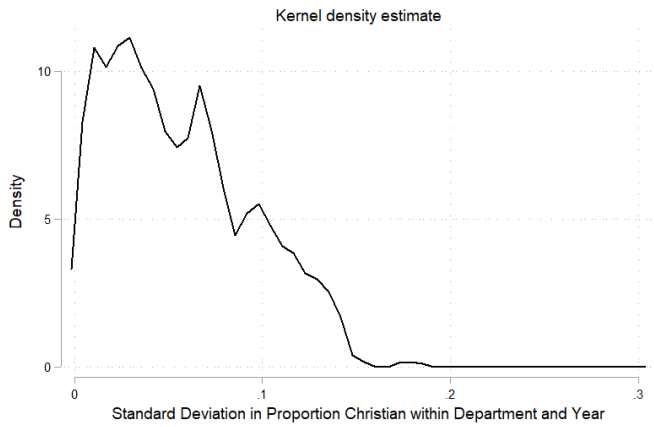
(f) Shi'a school students visiting Hezbollah martyrs memorial

Notes: The pictures depict activities that are distinctive of religious schools. Panel (a) shows Catholic school students attending a mass during school hours. Panel (b) shows a student from a top Catholic school greeting French President Emmanuel Macron during his September 2020 visit to Lebanon. Panels (c) and (d) show Islamic Sunni school students praying in the mosque during school hours. Panel (e) shows Islamic Shi'a school students with pictures of Iran's Supreme leader Ayatollah Khamenei during a school event. Panel (f) shows Islamic Shi'a school students on a school trip, visiting a memorial for Hezbollah martyrs. Source: Schools' Facebook pages.

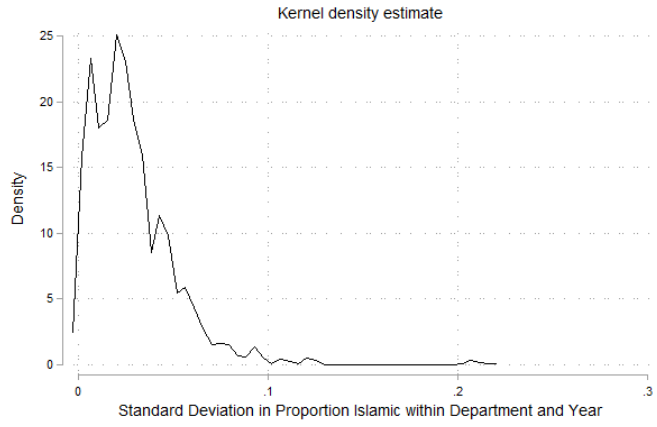
Figure 2: Standard Deviation in Proportion of Religious School Peers within University Department and Year



(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.

B 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	0.433
	(0.497)	(0.498)	(0.495)	(0.496)
Math SAT	649.707	646.133	657.546	640.281
	(72.524)	(71.742)	(73.076)	(72.558)
Legacy Status	0.244	0.273	0.206	0.196
	(0.429)	(0.446)	(0.405)	(0.397)
B. Student Level Outcomes				
First-Year GPA	77.722	77.452	78.201	77.517
	(7.995)	(8.052)	(7.771)	(8.469)
Dropout	0.164	0.171	0.152	0.166
	(0.370)	(0.376)	(0.359)	(0.372)
Graduate in 4 years	0.539	0.535	0.571	0.410
	(0.499)	(0.499)	(0.495)	(0.492)
Graduate in 6 Years	0.777	0.775	0.787	0.739
	(0.416)	(0.417)	(0.409)	(0.440)
Graduation GPA	79.732	79.557	80.063	79.372
	(5.922)	(5.969)	(5.858)	(5.831)
C. Peer Group Level Characteristics				
Female Advisor	0.300	0.311	0.288	0.285
	(0.459)	(0.463)	(0.453)	(0.452)
Tenured Advisor	0.335	0.336	0.324	0.372
	(0.472)	(0.473)	(0.468)	(0.484)
Peer Group Size	63.299	62.905	65.771	55.062
	(56.865)	(54.658)	(62.441)	(43.966)
Proportion Secular School Peers	0.594	0.599	0.587	0.588
	(0.095)	(0.095)	(0.093)	(0.104)
Proportion Christian School Peers	0.334	0.330	0.341	0.334
	(0.088)	(0.088)	(0.087)	(0.096)
Proportion Islamic School Peers	0.072	0.071	0.073	0.077
	(0.046)	(0.045)	(0.046)	(0.056)
N	12,590	7,143	4,452	995

Notes: 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. The proportion of peers from a specific religious background is calculated for each student by using a leave-one out method.

Table 2: Random Assignment Check

	(1) Christian School	(2) Muslim School	(3) secular School	(4) Math SAT	(5) Verbal SAT
Dependent Variable					
Proportion Christian	-0.00107	0.00378	-0.00012	0.00002	-0.00000
	(0.00132)	(0.00234)	(0.00128)	(0.00002)	(0.00002)
Proportion Islamic	0.00156**	-0.00241	-0.00074	0.00001	-0.00000
	(0.00063)	(0.00167)	(0.00064)	(0.00001)	(0.00001)
Proportion Secular	-0.00050	-0.00129	0.00085	-0.00003	0.00001
	(0.00143)	(0.00243)	(0.00151)	(0.00002)	(0.00002)
N	12,590	12,590	12,590	12,590	12,590

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 columns 1-3. *** p <0.01 ** p <0.05 * p <0.1.

Table 3: 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.

Table 4: 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	0.078***	-0.036	-0.123***
	(0.009)	(0.029)	(0.037)
Proportion Christian school peers	0.003	0.088***	-0.057***
	(0.003)	(0.015)	(0.020)
Year Fixed Effects	Yes	Yes	Yes
Department Fixed Effects	Yes	Yes	Yes
Student Controls	Yes	Yes	Yes
Advisor Controls	Yes	Yes	Yes
Department Level Peer Proportion	Yes	Yes	Yes
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. Student controls include gender, SAT scores. Advisor controls include gender and academic rank. Standard errors are clustered by advisor-year (peer group) and reported in parentheses. *** p <0.01 ** p <0.05 * p <0.1.

Table 5: Effect of Religious Diversity on First Year GPA

	(1) *First Year GPA*	(2) *First Year GPA*	(3) *First Year GPA*
Religious diversity for students from secular schools			
Christian relative to secular school peers	-0.005	-0.013	0.015
	(0.015)	(0.016)	(0.016)
Islamic relative to secular school peers	-0.037***	-0.051***	-0.030**
	(0.013)	(0.014)	(0.014)
Religious diversity for students from Christian schools			
Secular relative to Christian school peers	0.018	0.028	-0.001
	(0.017)	(0.018)	(0.018)
Islamic relative to Christian school peers	-0.016	-0.025	-0.032
	(0.021)	(0.022)	(0.022)
Religious diversity for students from Islamic schools			
Secular relative to Islamic school peers	0.047*	0.066**	0.041
	(0.028)	(0.030)	(0.027)
Christian relative to Islamic school peers	0.101***	0.104**	0.099***
	(0.038)	(0.041)	(0.036)
Department Fixed Effects	Yes	Yes	No
Year Fixed Effects	Yes	Yes	No
Department Linear Trend	Yes	Yes	No
Student Controls	Yes	Yes	Yes
Advisor Controls	Yes	No	Yes
Advisor Fixed Effects	No	Yes	No
Department-Year Fixed Effects	No	No	Yes
N	12,589	12,586	12,580

Notes: Sample includes all first time entering students from the academic years 2002 to 2017. Student controls include gender, SAT scores. Advisor controls include gender and academic rank. Both treatment and outcome are standardized. Standard errors are clustered by advisor-year (peer group) and reported in parentheses. *** p <0.01 ** p <0.05 * p <0.1.

Table 6: Effect of Religious Diversity on Instructor Religion

	(1) *Teacher same religion as student*	(2) *Teacher same religion as student*	(3) *Teacher same religion as student*
Religious diversity for students from secular schools			
Christian relative to secular school peers	-0.008**	-0.004	-0.004
	(0.004)	(0.004)	(0.004)
Islamic relative to secular school peers	0.000	-0.002	-0.002
	(0.003)	(0.003)	(0.003)
Religious diversity for students from Christian schools			
Secular relative to Christian school peers	0.001	0.002	0.005
	(0.005)	(0.005)	(0.005)
Islamic relative to Christian school peers	0.000	0.000	0.004
	(0.007)	(0.007)	(0.006)
Religious diversity for students from Islamic schools			
Secular relative to Islamic school peers	-0.016**	-0.019**	-0.016**
	(0.008)	(0.008)	(0.008)
Christian relative to Islamic school peers	-0.002	-0.012	-0.011
	(0.013)	(0.013)	(0.013)
Department Fixed Effects	Yes	Yes	No
Year Fixed Effects	Yes	Yes	No
Department Linear Trend	Yes	Yes	No
Student Controls	Yes	Yes	Yes
Advisor Controls	Yes	No	Yes
Advisor Fixed Effects	No	Yes	No
Department-Year Fixed Effects	No	No	Yes
N	43,166	43,164	43,165

Notes: 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 teachers are from the same religion. Standard errors are clustered by individual (due to repeated observations) and reported in parentheses. *** p <0.01 ** p <0.05 * p <0.1.

Table 7: Mechanisms for First-year GPA

	(1) *First Year GPA*	(2) *First Year GPA*	(3) *First Year GPA*	(4) *First Year GPA*
Religious diversity for students from secular schools				
Christian relative to secular school peers	-0.009	-0.008	0.002	-0.001
	(0.016)	(0.016)	(0.018)	(0.018)
Islamic relative to secular school peers	-0.037***	-0.034***	-0.042***	-0.045***
	(0.013)	(0.013)	(0.014)	(0.014)
Religious diversity for students from Christian schools				
Secular relative to Christian school peers	0.018	0.023	0.019	0.014
	(0.017)	(0.017)	(0.019)	(0.019)
Islamic relative to Christian school peers	-0.016	-0.010	-0.014	-0.015
	(0.021)	(0.021)	(0.024)	(0.024)
Religious diversity for students from Islamic schools				
Secular relative to Islamic school peers	0.042	0.041	0.010	0.003
	(0.028)	(0.028)	(0.029)	(0.030)
Christian relative to Islamic school peers	0.110***	0.109**	0.099**	0.110**
	(0.039)	(0.038)	(0.049)	(0.050)
Department and Year Fixed Effects	Yes	Yes	Yes	Yes
Student and Advisor Controls	Yes	Yes	Yes	Yes
Department Linear Trend	Yes	Yes	Yes	Yes
Peer Quality × Religious Background	Yes	Yes	Yes	Yes
Peer Gender × Religious Background	No	Yes	Yes	Yes
Peer Language × Religious Background	No	No	Yes	Yes
Peer Socioeconomic Status × Religious Background	No	No	No	Yes
N	12,589	12,589	11,557	11,536

Notes: Sample includes all first time entering students from the academic years 2002 to 2017. Student controls include gender, SAT scores. Advisor controls include gender and academic rank. Both treatment and outcome are standardized. Standard errors are clustered by advisor-year (peer group) and reported in parentheses. *** p <0.01 ** p <0.05 * p <0.1.

Table 8: Mechanisms for Teacher Religion

	(1) Teacher *Same Religion*	(2) Teacher *Same Religion*	(3) Teacher *Same Religion*	(4) Teacher *Same Religion*
Religious diversity for students from secular schools				
Christian relative to secular school peers	-0.006	-0.006	-0.007	-0.007
	(0.004)	(0.004)	(0.004)	(0.004)
Islamic relative to secular school peers	0.001	0.001	0.002	0.002
	(0.003)	(0.003)	(0.003)	(0.003)
Religious diversity for students from Christian schools				
Secular relative to Christian school peers	0.001	0.001	0.000	0.003
	(0.006)	(0.006)	(0.006)	(0.006)
Islamic relative to Christian school peers	0.000	0.000	-0.002	0.001
	(0.007)	(0.007)	(0.007)	(0.007)
Religious diversity for students from Islamic schools				
Secular relative to Islamic school peers	-0.015**	-0.016**	-0.019**	-0.018**
	(0.008)	(0.008)	(0.009)	(0.009)
Christian relative to Islamic school peers	-0.008	-0.010	-0.017	-0.020
	(0.014)	(0.014)	(0.016)	(0.017)
Department and Year Fixed Effects	Yes	Yes	Yes	Yes
Student and Advisor Controls	Yes	Yes	Yes	Yes
Department Linear Trend	Yes	Yes	Yes	Yes
Peer Quality × Religious Background	Yes	Yes	Yes	Yes
Peer Gender × Religious Background	No	Yes	Yes	Yes
Peer Language × Religious Background	No	No	Yes	Yes
Peer Socioeconomic Status × Religious Background	No	No	No	Yes
N	42,894	42,894	42,894	42,764

Notes: 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 teachers are from the same religion. Standard errors are clustered by individual (due to repeated observations) and reported in parentheses. *** p <0.01 ** p <0.05 * p <0.1.

Table 9: Effects on First-Year GPA: Heterogeneity based on religious diversity of high school's location

	(1) Non-Homogeneous Districts *First-Year GPA*	(2) Homogeneous Districts *First-Year GPA*
Religious diversity for students from secular schools		
Christian relative to secular school peers	0.009	-0.011
	(0.025)	(0.018)
Islamic relative to secular school peers	-0.014	-0.047***
	(0.022)	(0.015)
Religious diversity for students from Christian schools		
Secular relative to Christian school peers	0.066**	0.001
	(0.028)	(0.020)
Islamic relative to Christian school peers	0.046	-0.037
	(0.037)	(0.026)
Religious diversity for students from Islamic schools		
Secular relative to Islamic school peers	0.061	0.021
	(0.040)	(0.034)
Christian relative to Islamic school peers	0.137**	0.052
	(0.062)	(0.045)
Department and Year Fixed Effects	Yes	Yes
Student and Advisor Controls	Yes	Yes
Department Linear Trend	Yes	Yes
N	3,778	8,448

Notes: Sample includes all first time entering students from the academic years 2002 to 2017. Student controls include gender, SAT scores. Advisor controls include gender and academic rank. Both treatment and outcome are standardized. Standard errors are clustered by advisor-year (peer group) and reported in parentheses. *** p<0.01 ** p<0.05 * p<0.1

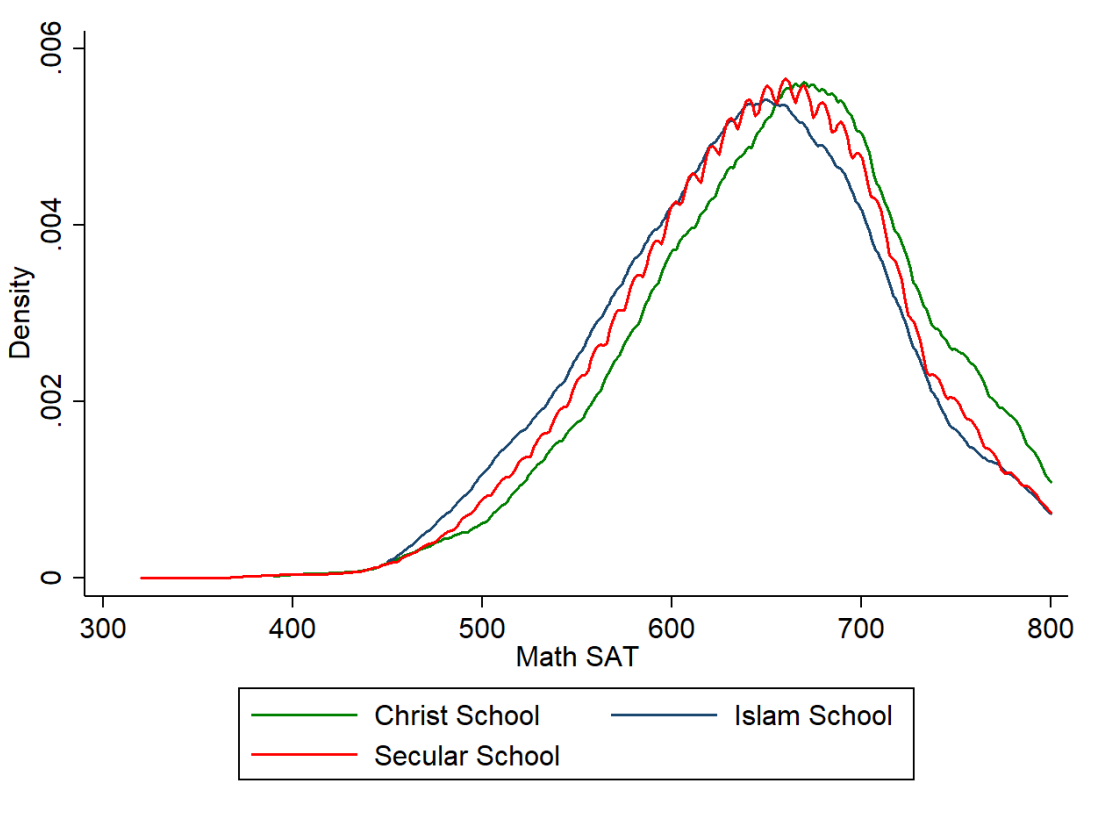
Table 10: Effects on Teacher Religion: Heterogeneity based on religious diversity of high school's location

	(1) Non-Homogeneous Districts *Teacher Same Religion*	(2) Homogeneous Districts *Teacher Same Religion*
Religious diversity for students from secular schools		
Christian relative to secular school peers	-0.006	-0.012**
	(0.008)	(0.005)
Islamic relative to secular school peers	0.000	-0.002
	(0.006)	(0.004)
Religious diversity for students from Christian schools		
Secular relative to Christian school peers	-0.010	0.003
	(0.010)	(0.007)
Islamic relative to Christian school peers	-0.022*	0.003
	(0.012)	(0.009)
Religious diversity for students from Islamic schools		
Secular relative to Islamic school peers	-0.031**	-0.004
	(0.014)	(0.012)
Christian relative to Islamic school peers	-0.029	0.028
	(0.024)	(0.018)
Department and Year Fixed Effects	Yes	Yes
Student and Advisor Controls	Yes	Yes
Department Linear Trend	Yes	Yes
N	10,450	24,985

Notes: 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 teachers are from the same religion. Student controls include gender, SAT scores. Advisor controls include gender and academic rank. Standard errors are clustered by individual (due to repeated observations) and reported in parentheses. *** p <0.01 ** p <0.05 * p <0.1.

C Appendix Figures and Tables

Figure A1: Mathematics SAT score distribution for each school type



Notes: The above figures shows the kernel distributions of Mathematics SAT scores for students in Christian, Islamic and Secular schools.

Table A1: First Year Course-Taking Behavior 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	0.050***	-0.031*	-0.102***
	(0.012)	(0.018)	(0.029)
Proportion Christian school peers	0.005	0.072***	-0.012
	(0.005)	(0.015)	(0.020)
Students from Christian schools			
Proportion Islamic school peers	0.083***	-0.051	-0.112**
	(0.010)	(0.039)	(0.048)
Proportion Christian school peers	-0.001	0.078***	-0.078***
	(0.003)	(0.019)	(0.023)
Students from secular schools			
Proportion Islamic school peers	0.084***	-0.033	-0.138***
	(0.010)	(0.030)	(0.039)
Proportion Christian school peers	0.005**	0.098***	-0.050**
	(0.003)	(0.014)	(0.022)
Year Fixed Effects	Yes	Yes	Yes
Department Fixed Effects	Yes	Yes	Yes
Student Controls	Yes	Yes	Yes
Advisor Controls	Yes	Yes	Yes
Department Level Peer Proportion	Yes	Yes	Yes

Notes: Each column represents a different student-course-level regression. Sample includes all first time entering students from the academic years 2002 to 2017. Student controls include gender, SAT scores. Advisor controls include gender and academic rank. Standard errors are clustered by advisor-year (peer group) and reported in parentheses. *** p <0.01 ** p <0.05 * p <0.1.

Table A2: Course-Taking Behavior—Robustness Checks

	(1) *Prop. Muslims from Advisor Peer Group in Class*	(2) *Prop. Christians from Advisor Peer Group in Class*	(3) *Prop. secular from A Peer Group in C*
1st-year courses with more than one section identified			
Proportion Islamic school peers	0.050***	-0.016	-0.089***
	(0.005)	(0.017)	(0.027)
Proportion Christian school peers	0.000	0.058***	-0.036**
	(0.002)	(0.013)	(0.018)
N	67,803	67,803	67,803
All courses taken in all years			
Proportion Islamic school peers	0.059***	-0.017	-0.056***
	(0.006)	(0.019)	(0.028)
Proportion Christian school peers	-0.000	0.067***	-0.037***
	(0.002)	(0.012)	(0.015)
N	413,004	413,004	413,004
Year Fixed Effects	Yes	Yes	Yes
Department Fixed Effects	Yes	Yes	Yes
Student Controls	Yes	Yes	Yes
Advisor Controls	Yes	Yes	Yes

Notes: Each column represents a different course-level regression. Sample includes all first time entering students from the academic years 2002 to 2017. Student controls include gender, SAT scores. Advisor controls include gender and academic rank. Standard errors are clustered by advisor-year (peer group) and reported in parentheses.
*** p <0.01 ** p <0.05 * p <0.1.

Table A3: Effect of Pooled Diversity on First Year GPA

	(1) *First Year GPA*	(2) *First Year GPA*	(3) *First Year GPA*
Different relative to similar peers	0.026***	0.026***	0.030***
	(0.007)	(0.007)	(0.008)
Department Fixed Effects	Yes	Yes	No
Year Fixed Effects	Yes	Yes	No
Department Linear Trend	Yes	Yes	No
Department-Year Fixed Effects	No	No	Yes
Student Controls	No	Yes	Yes
Advisor Controls	No	Yes	Yes
N	12,590	12,589	12,580

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. Student controls include gender, SAT scores. Advisor controls include gender and academic rank. Both treatment and outcome are standardized. Standard errors are clustered by advisor-year (peer group) and reported in parentheses. *** p <0.01 ** p <0.05 * p <0.1.

Table A4: Effect of Religious Diversity on Teacher Religion during First Year (Robustness Check)

	Teacher Same Religion as Student
Religious diversity for students from secular schools	
Christian relative to secular school peers	0.004
	(0.006)
Islamic relative to secular school peers	-0.004
	(0.006)
Religious diversity for students from Christian schools	
Secular relative to Christian school peers	0.003
	(0.009)
Islamic relative to Christian school peers	0.005
	(0.011)
Religious diversity for students from Islamic schools	
Secular relative to Islamic school peers	0.002
	(0.012)
Christian relative to Islamic school peers	0.007
	(0.017)
Department Fixed Effects	Yes
Year Fixed Effects	Yes
Department Linear Trend	Yes
Student Controls	Yes
Advisor Controls	Yes
N	15,943

Notes: Sample includes course level data on students in their first year during the academic years 2012 to 2017. The outcome of interest is a binary outcome for whether students and teachers are from the same religion. Standard errors are clustered by individual (due to repeated observations) and reported in parentheses. *** p <0.01 ** p <0.05 * p <0.1.

Table A5: Effect of Religious Diversity on Instructor Value Added

	(1) *Teacher Value Added*	(2) *Teacher Value Added*
Religious diversity for students from secular schools		
Christian relative to secular school peers	0.0003	-0.0001
	(0.0016)	(0.0015)
Islamic relative to secular school peers	0.0019	0.0014
	(0.0013)	(0.0013)
Religious diversity for students from Christian schools		
Secular relative to Christian school peers	0.0009	0.0017
	(0.0018)	(0.0017)
Islamic relative to Christian school peers	0.0016	0.0015
	(0.0021)	(0.0021)
Religious diversity for students from Islamic schools		
Secular relative to Islamic school peers	-0.0008	-0.0013
	(0.0038)	(0.0038)
Christian relative to Islamic school peers	0.0025	0.0015
	(0.0047)	(0.0046)
Department Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Department Linear Trend	Yes	No
Student Controls	Yes	Yes
Advisor Controls	Yes	Yes
Department-by-Year Fixed Effects	No	Yes
N	36,774	36,774

Notes: Sample includes course level data on students in their second and third year during the academic years 2012 to 2017. Teacher 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. Standard errors are clustered by individual and reported in parentheses. *** p <0.01 ** p <0.05 * p <0.1.

Table A6: Diversity Effects for Secular Students from Homogeneous Districts

	(1) Homogeneous Districts *Majority muslim*	(2) Homogeneous Districts *majority christians*
A. Outcome: Secular Teacher		
Christian relative to secular school peers	-0.016***	-0.006
	(0.006)	(0.010)
B. Outcome: Muslim Teacher		
Christian relative to secular school peers	0.004	-0.001
	(0.007)	(0.011)
C. Outcome: Christian Teacher		
Christian relative to secular school peers	0.012*	0.007
	(0.007)	(0.012)
Department and Year Fixed Effects	Yes	Yes
Student and Advisor Controls	Yes	Yes
Department Linear Trend	Yes	Yes
N	14,536	10,449

Notes: Sample includes all first time entering students from the academic years 2002 to 2017. Student controls incl
SAT scores. Advisor controls include gender and academic rank. Both treatment and outcome are standardized
errors are clustered by advisor-year (peer group) and reported in parentheses. *** p<0.01 ** p<0.05 * p<0.1

D Longer-Run Academic Outcomes: Attrition, Graduation and Final GPA

In this section, we examine whether religious school peer match affects students in ways that extend beyond first-year grade improvements. Specifically, we look at how first-year attrition, four and six-year graduation rates as well as GPA at graduation are impacted. These results are summarized in Table A7 where we include department and year fixed effects, department specific linear time trends as well as student and advisor controls in all regressions. We begin by looking at whether peer match affects first-year dropout rates differentially. Estimates reported in column 1 of Table A7 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 with a higher proportion of Christian versus secular school background peers.

In column 2 of Table A7 , 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 higher proportion of peers from Islamic as opposed to secular schools decreases the likelihood of 4-year graduation by 2.6 percentage points, significant at the 10 percent level. Interestingly, 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 suggestive evidence of a positive impact on 4-year graduation rates for Islamic students matched to dissimilar peer groups—though these estimates are not statistically significant at conventional levels. Overall, precision is reduced when looking at 4-year graduation rates, most likely due to reduced sample size, but the direction of estimates are in line with those found on first year GPA.[44]

We next investigate whether overall graduation rates are affected by looking at 6-year graduation likelihood as an outcome of interest. These results, presented in column 3 of Table A7, indicate that religious peer match has no statistically significant impact on overall graduation rates for all types of students. However, these results are fairly imprecise precluding us from making any definitive conclusions regarding this outcome. Finally, we look at graduating GPA as a potential outcome of interest to further understand if the documented effects on first year GPA extend to longer term grade improvements.[45] Strikingly, we find that performance effects persist in the long run as we document comparable magnitudes on

[44]Recall, 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.

[45]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.

total GPA which mirror those found on first-year GPA. Indeed, estimates from column 4 indicate that students from secular high schools have a lower graduation GPA when matched with peers from dissimilar backgrounds, whereas those from Islamic high schools only benefit from matching with dissimilar or diverse peers, particularly those who attended Christian high schools (0.097). Overall, our findings indicate that the educational impacts of religious school peer match are reflected primarily in terms of short and long term grade improvements and partially in terms of on-time graduation, though the latter effects are imprecisely estimated.

Table A7: Effect of Religious Diversity on Longer Term Academic Outcomes

	(1) *Dropout*	(2) *4 Year Graduation*	(3) *6 Year Graduation*	(4) *Graduation GPA*
Religious diversity for students from secular schools				
Christian relative to secular school peers	-0.014*	0.025	0.022	-0.033*
	(0.008)	(0.018)	(0.015)	(0.017)
Islamic relative to secular school peers	-0.002	-0.025	-0.017	-0.045***
	(0.007)	(0.016)	(0.016)	(0.014)
Religious diversity for students from Christian schools				
Secular relative to Christian school peers	0.006	0.008	0.010	0.023
	(0.008)	(0.020)	(0.016)	(0.019)
Islamic relative to Christian school peers	0.007	-0.004	-0.007	-0.008
	(0.010)	(0.023)	(0.020)	(0.024)
Religious diversity for students from Islamic schools				
Secular relative to Islamic school peers	0.014	0.026	0.006	0.053*
	(0.010)	(0.025)	(0.022)	(0.029)
Christian relative to Islamic school peers	0.003	0.042	-0.006	0.097**
	(0.012)	(0.037)	(0.031)	(0.044)
Year Fixed Effects	Yes	Yes	Yes	Yes
Department Fixed Effects	Yes	Yes	Yes	Yes
Department Linear Trend	Yes	Yes	Yes	Yes
Student Controls	Yes	Yes	Yes	Yes
Advisor Controls	Yes	Yes	Yes	Yes
N	12,589	7,613	7,613	6,110

Notes: Sample includes all first time entering students from the academic years 2002 to 2017 for dropout and 2002 to 2012 for graduation outcomes. Student controls include gender, SAT scores. Advisor controls include gender and academic rank. Both treatment and outcome are standardized. Standard errors are clustered by advisor-year (peer group) and reported in parentheses. *** p <0.01 ** p <0.05 * p <0.1.