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Serena Canaan
Simon Fraser University and IZA

Antoine Deeb
University of California Santa Barbara

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IZA – Institute of Labor Economics

Schaumburg-Lippe-Straße 5–9
53113 Bonn, Germany

Phone: +49-228-3894-0
Email: publications@iza.org

www.iza.org

ABSTRACT

Does Religious Diversity Improve Trust and Performance? Evidence from Lebanon*

Religious divisions have long played a primary role in major conflicts throughout much of the world. Intergroup contact may increase trust between members of different religions. However, evidence on how inter-religious contact affects individuals' behavior towards one another is scarce. We examine this question in the setting of a four-year university in Lebanon, a country with a long history of deep divisions and armed conflicts between religious groups. 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—the last of which have the most religiously homogeneous student body. Results indicate that for students from Islamic high schools, exposure to peers from different religious backgrounds decreases their enrollment in courses taught by instructors with distinctively Muslim names, suggesting that contact improves trust towards members of other religions. Moreover, we show that students from Islamic schools experience improvements in GPA when interacting with those from other groups, while exposure to Islamic students reduces secular students' academic performance.

JEL Classification: I23, J15
Keywords: diversity, religious schools, intergroup contact

Corresponding author:
Pierre Mouganie
Department of Economics
Simon Fraser University
8888 University Dr W
Burnaby, BC V5A 1S6
Canada
E-mail: pierre_mouganie@sfu.ca

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1 Introduction

Religion has a central role in shaping societies' political, social and economic experiences. In many countries, it 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).

Postsecondary institutions are uniquely positioned to help bridge gaps between divided communities. Indeed, colleges offer many students their first opportunity to meet and interact with individuals from different religious, racial and socioeconomic backgrounds. Under the contact hypothesis, interactions between different groups are expected to break down negative preconceptions and improve intergroup relationships (Williams Jr., 1947; Allport, 1954).[1] Nonetheless, whether intergroup contact can promote tolerance is theoretically ambiguous, as exposure to an outgroup may increase prejudice through making group dissimilarities more salient (Tajfel, 1982). Another potential benefit of diversity in college is that it can 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, evidence on how contact between individuals from different religions shapes their behavior towards one another is scarce. Additionally, 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' trust towards members of other religions and academic performance. To do so, we use rich administrative data from the years 2001 to 2016 on all students enrolled at the American University of Beirut (AUB), a private secular 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, and to the persistence of sectarian tensions and violence after the

[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.

war ended (Patterson, 2013). 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. The final difference is that secular and Christian schools disseminate Western culture and ideas, while Islamic schools are more conservative and often propagate anti-Western sentiment.

We examine how college students' social behavior and academic performance are affected by exposure to peers who attended a different type of high school. Intuitively, our identification 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. As a measure of intergroup trust, we look at the probability that students enroll in courses with instructors from a different religious background than their own. We use instructors' names as a proxy for their religious background, 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). In Lebanon, it is common for parents, with some attachment to their religious identity, to give their children religiously distinctive names. We view instructor choice as an important measure of students' trust or openness towards members of other religions,

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 trust 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 versus secular high schools, but no effects are detected for students from Christian high schools.

We run two tests to substantiate that our effects are due to religious interactions. First, we show that our main estimates are unchanged when we add controls for peers' high school characteristics including language of instruction and student body's academic ability, gender composition and socioeconomic background. This suggests that it is the religious aspect of the high schools, rather than other factors, that is driving our estimates. Second, we conduct heterogeneity analysis based on the type of religious diversity that students are exposed to prior to interacting with their university peers. Previous evidence indicates that the impacts of intergroup contact depend on the relative size of different groups: it fosters integration in fractionalized communities (with many small groups), but leads to conflict in polarized settings with a few large groups (Bazzi et al., 2019). In line with these predictions, we show that our main positive effects on instructor choice and performance are concentrated among Islamic students whose high schools are located in fractionalized districts. In contrast, the negative impact on secular students' GPA is driven by those whose high schools are in polarized districts.

Our paper provides some of the first causal evidence that contact between members of different religious groups leads to important changes in their behavior towards one another. Our findings thus relate to a literature which empirically studies the impact of intergroup contact on individual attitudes and behavior. Previous work looks at contact 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). Other studies also exploit the random assignment of students to college peers or roommates, but examine contact between students of different races. Their findings indicate 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). Our work is distinct from this literature as we are the first to focus on *inter-religious* contact in an educational context—as opposed to contact between different races or social classes.

Only a handful of studies examine inter-religious contact in settings that are substantially different from ours, and their findings are mixed. Barnhardt (2009) shows that greater exposure to Muslim neighbors in India improves Hindus' attitudes towards Muslims as measured by survey responses. On the other hand, Scacco and Warren (2018) find that assigning Nigerian men to religiously mixed or homogenous computer training classes does not impact survey-based measures of prejudice. An advantage of our study is that we do not rely on self-reported attitudes. Instead, by showing that intergroup interactions reduce students' enrollment in courses with instructors of the same religion, our paper documents that contact changes *behavior* towards the outgroup. This distinction is important as self-reported measures may suffer from social desirability bias (Carlana, 2019), and it is unclear whether improvements in elicited attitudes can result in meaningful behavioral changes (Carrell, Hoekstra and West, 2019). Another study by 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. These effects are likely driven by the positive and collaborative nature of contact between soccer teammates.[2] However, they may not generalize to settings where intergroup contact is naturally occurring—such as interacting with college peers—and where researchers have no control over the nature of contact.[3]

[2]Lowe (2021) shows that in sports, the nature of contact is important. Specifically, he finds that in Indian cricket leagues, exposure to *teammates* from other castes increases cross-caste friendships and decreases own-caste favoritism, while different-caste *opponents* reduce cross-caste interactions.

[3]Indeed, studies focusing on naturally occurring contact tend to find negative effects on political out-

Our paper is also 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.

Finally, our findings are connected to a body of work that explores the relationship between education and religion (See Iyer, 2016 for a review). Most closely related are studies that examine the consequences of nationwide policies intended to increase access to secular education. Access to secular education has been shown to raise educational attainment and reduce religiosity in various settings, as well as limit religious practices such as veiling and voting for Islamic political parties in Muslim countries (Hungerman, 2014; Gulesci and Meyersson, 2015; Becker, Nagler and Woessmann, 2017; Mocan and Pogorelova, 2017; Cesur and Mocan, 2018). Our results complement this literature by showing that secular education can improve intergroup trust and educational outcomes through exposing students to individuals from different religious backgrounds.

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 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,

comes. For example, Enos (2014) shows that repeated exposure to Hispanics on Boston trains worsens White individuals' views on immigration. Colussi, Isphording and Pestel (2021) find that the salience of Muslim communities in Germany during Ramadan increases political polarization.

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 2a) 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] Christian schools are perceived to offer a high quality education, making them attractive for parents from both Christian and Muslim communities. 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

[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 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.

culture and ideas. This is consistent with the fact that Lebanese Christians are historically pro-West and politically aligned with France. For example, Figure 2b 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 2c and 2d). 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 2e). Islamic schools' student body is religiously homogeneous, as they enroll exclusively Muslim students. These schools also play an important role in shaping students' identity and ideology. For example, elements of Hezbollah's ideology such as its pro-Iran and anti-Israel stance, and the glorification of martyrdom are part of the general discourse at Shi'a schools (see Figure 2f).

Secular Schools. Private secular schools are either local independent schools or are part

[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.

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 such as their ability, language of instruction, socioeconomic and gender composition. 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. Additionally, 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]

2.3 The American University of Beirut and Peer Formation

Our analysis focuses on students who first enroll in AUB as sophomores. For most students in Lebanon, the first year of college is the sophomore year as the last year of high school is equivalent to the freshman year. 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%)

[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.

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 sophomore year. They are then 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.[9] 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.

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 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.[10] 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.[11] 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

[9] 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.

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

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

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 (Sophomore, Junior, Senior, etc...), 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.[12] 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 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

[12]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.

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 and verbal SAT scores for all students in our sample are 649 and 536 points respectively.[13] Compared to the scores announced by the College Board in 2019, these correspond to the 83rd and 50th percentile in the math and verbal portions of the SAT exam respectively.[14] The SAT scores differ according to students' high school background. Students from Christian school backgrounds have the highest math SAT score—17 points higher on average than students from Islamic schools—while students from Islamic schools have a verbal SAT score about 44 points lower than those from other backgrounds. 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 student school background type. Out of all students who enter the university as sophomores, around 16.5% dropout 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, strikingly, 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.

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 peer group size is 63 students with some heterogeneity in size across school background types. Finally, we present summary statistics for our three treatment variables of

[13]The difference in average performance in math and verbal SAT scores is most likely because English is a second language for most students in Lebanon. As such, math SAT tends to be a better measure of students' baseline ability.

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

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 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 advising group they are allocated to within their department during the first semester at university. Formally, we run the following regression model for all incoming sophomore students:

[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 $\frac{1}{10}$.

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

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. Further, 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. 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.

Our main interest 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. In most specifications, we also add a rich set of controls that should improve precision by reducing residual variation in the outcome variable, but should not significantly alter the treatment estimates. These include a vector of student controls X_i' that contains information on students' gender, math and verbal 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. Finally, 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]

[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.

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 3 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 3 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 resampling 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 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

[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.

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 Evidence on Peer Interactions—Course Taking Behavior

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. As detailed in section 2, this matching process results in numerous channels for potential early peer interactions among students matched to the same advisor. For instance, students must meet with their advisors prior to the beginning of the first semester. Notably, these meetings take place during a condensed advising period of one or two days resulting in many students grouping outside of their advisors' office waiting for their turn for one-on-one advising. Additionally, some advisors opt for small group advising sessions with their advisees. Importantly, this is the first interaction most students have with other individuals at university.

Second, students who share the same advisor are more likely to get similar advice on course sequence and selection. As a result, another potential channel for peer group interactions is inside the classroom. Before moving on to our main results, we first provide evidence of advisor group peer interactions. Specifically, 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, specifically with respect to peer school background. This grouping may be due to the formation of friendships while in the same peer group or advisors pushing 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 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 reports heterogeneous results by student school background and findings are similar.

One concern with the above analysis may be that we are miss-attributing advisor group peers to the same classroom as a result of not observing full information on class sections. For example, if there are three sections for a specific class and all are taught by only female or male instructors, then students in all three sections would be considered classroom peers using our definition. In such cases, the above analysis may wrongly attribute this to evidence of classroom peer sorting, when in reality these peers may not have ever been in the same classroom.[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 First-Year GPA

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 most basic specification that only includes the main parameters of interest, department fixed effects, year or cohort fixed effects and department specific linear time trends from equation (1). 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

[21] We must note that this miss-allocation 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 interaction 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.

to Muslim peers and row 6 captures diversity effects when the dissimilar peers are Christian. Recall, all proportion measures are standardized throughout and as such, treatment should be interpreted as a one standard deviation increase in exposure to one set of peers relative to 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 3.6 percent of a standard deviation, as shown in row 2 of Table 5. The magnitude of these effects are roughly comparable to those found in gender peer effects studies. For instance, Lavy and Schlosser (2011) find that a one standard deviation increase in the proportion of 5th grade elementary male students decreases average test scores of girls and boys by 2.7 and 2.4 percent of a standard deviation respectively.

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 (0.005) 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 (-0.026).

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 9.5 percent of a standard deviation. To further ease interpretation of this result, 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 3.2 percent of a standard deviation increase in first year GPA for Muslim students.[23] Finally, we also find positive, but statistically insignificant, effects for Islamic school stu-

[23]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 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 9.5 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 $9.5 \div 3 = 3.2$ percent of a standard deviation improvement in Muslim students' first year performance.

dents exposed to diverse secular peers at university, indicating that Muslim students achieve academic gains when paired with peers from drastically different school environments.

We test the robustness of our findings to the inclusion of various student and advisor level controls. These results are presented in column 2 of Table 5, where controls include student gender, SAT scores, legacy status as well as advisor gender and academic rank. Our results are robust to the inclusion of these controls, in line with the random assignment of students to peer groups. Indeed, all significant coefficients reported in column 1 remain so. Additionally, the positive but marginally insignificant coefficient we found on secular versus Islamic peer match for students from Islamic high schools is now statistically significant at the 10 percent level. Finally, in column 3 of Table 5, we present coefficients from a specification that includes department-year fixed effects and results remain largely similar. 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.

5.4 Longer-Run Academic Effects: Attrition, Graduation and Final GPA

Next, 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 6 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 6 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 6 , 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.[24]

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 6, 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.[25] Strikingly, we find that performance effects persist in the long run as we document comparable magnitudes on total GPA which mirror those found on first-year GPA. 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.

5.5 Instructor Religion

Having analyzed academic effects, we now turn to behavioral outcomes. In particular, we check whether religious peer match impacts students' likelihood of taking classes with instructors from similar religions. To do so, 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.[26] We then constructed a database

[24]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.

[25]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.

[26]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.

of teachers' religion based on their full names. Importantly, 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.

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.[27] 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.[28]

We then run student-course level regressions analogous to equation (1) using teacher religion as outcome.[29] In particular, our outcome of interest is a binary indicator that measures student and teacher religious match. For Islamic school students, we define 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 7 summarizes findings from this exercise using two different specifications. Specifically, in column 1 of Table 7, we present religious peer match estimates on the likelihood that students and teachers are of the same religion

[27] 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.

[28] 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.

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

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 column (2), we present estimates using a specification that includes 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 7. However, this result is not robust to the inclusion of department-by-year fixed effects as shown in column (2). 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 students' instructor choices. Particularly, in row 5 of Table 7, we show that being matched to a one standard deviation higher proportion of secular as opposed to 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 department-by-year fixed effects, as show in column (2). 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 estimate in column (2) is 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 trust towards the outgroup.

As a robustness check, we show that these effects do not exist in settings where we would expect them not to. In particular, we find that first-year course instructor religion is unaffected by peer group composition. Indeed, first semester course registration occurs before students interact with their peers and second semester registration occurs one month into the start of the new academic year; before students have any prolonged and meaningful contact with students. Appendix Table A3 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 Possible Mechanisms

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 secular rather than Islamic peers. Additionally, Muslim students are less likely to take courses with Muslim instructors when exposed to dissimilar or diverse peers.

A natural question that arises is whether we can attribute these peer 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 other than their religious focus or diversity are driving our effects.

We start by checking whether peer quality is driving the documented findings on first-year GPA and instructor religion. Indeed, university students who attended Christian high schools have higher mathematics SAT scores than secular or Islamic high school students, as documented in Table 1. Accordingly, we 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, separately for each type of student.[30] Results presented in column (1) of Table 8 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 9, 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 (1.5 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

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

check for this, in column 2 of Tables 8 and 9, 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 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.[31] 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 8 and 9 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.[32] We next look at whether the average high school tuition of peer groups affects findings.[33] Results presented in column (4) of Tables 8 and 9 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.

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.

[31] 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.

[32] 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.

[33] 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.

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 suggests that religious school background peer match is mainly capturing the effects of religious culture or attitudes.

6.2 Heterogeneous Effects Based on Religious Diversity of High School's Location

To further corroborate that our findings are driven by the religious or cultural aspect of the peer interaction, we present heterogeneous effects based on the type of religious diversity students are exposed to prior to their peer interactions (as measured by the type of diversity in students' high school location). Previous studies highlight that the predicted impacts of intergroup contact depend on the relative size of different groups. Bazzi et al. (2019) find that in fractionalized communities with many small ethnic groups, contact promotes national integration. In contrast, intergroup contact increases ethnic attachment in polarized communities with a few large ethnic groups. In our setting, this implies that contact should be more beneficial for students coming from fractionalized rather than polarized communities.

6.2.1 Measures of Religious Diversity

To measure fractionalization and polarization, we need data on the shares of residents from different religions in each location. Due to the prevailing tensions between religious groups in Lebanon, no such data are available.[34] Instead, 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. The electoral districts roughly correspond to the *Kadaa* i.e., the 24 districts that constitute Lebanon's smallest administrative units.[35] 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 neighborhoods within Beirut.

[34]Indeed, the last official Lebanese census was conducted in 1932.

[35]Lebanon is administratively divided into 8 governorates (or *Muhafazah*). Each governorate is further divided into districts (or *Kadaa*).

We proxy the diversity of a high school's location with two widely-used indices: Fractionalization $F = 1 - \sum_{k=1}^{K} S_k^2$ and Polarization $P = 4 \sum k = 1^K S_k^2 (1 - S_k)$, where S represents the share of the religious group k registered to vote in a specific electoral district. We consider each sect in Lebanon to be a separate religious group k.[36] Fractionalization F is the probability that two individuals, selected at random from an electoral district's population, are from different religions. As a result, F is higher in districts with many small religious groups. Polarization P increases as the shares of different religious groups in an electoral district become more equal in size (or get closer to a symmetric bimodal distribution).

Previous studies show that communities with high F are associated with lower incidence of conflicts and foster the formation of a national identity. On the other hand, higher P increases the incidence of conflicts and ethnic attachment (Montalvo and Reynal-Querol, 2005; Bazzi et al., 2019). By using F and P as our measures of religious diversity, we can thus examine whether our documented effects depend on the degree *and* type of diversity that students are exposed to prior to the peer interaction. Specifically, we report heterogeneous effects based on whether a student's high school is located in a (i) low-diversity electoral district, (ii) highly-fractionalized electoral district or, (iii) highly-polarized electoral district.

To help illustrate how we classify districts into these 3 categories, Figure A1 plots F as a function of P for all Lebanese electoral districts.[37] The figure can be divided into 3 distinct regions. In the first region, F and P are both low ($F<0.4$ and $P<0.6$) and there is an almost collinear relationship between the two. This region includes districts that have low levels of religious diversity.[38] The least diverse district in Lebanon is Nabatie where 95.37% of registered voters are Shi'a Muslims, 3% are Maronite Christians and 1.7% are Sunni Muslims resulting in an F=0.089 and P=0.173. In the second region, P is high (i.e., P is higher than its median of 0.67) and F and P are positively correlated. This region comprises our highly-polarized districts.[39] An example is the district of Aley which has a total of 6 different sects. In Aley, Druze constitute the highest share of registered voters at 53.5%, but there are also two other large religious groups (Greek Orthodox Christians=13.1%

[36]The Christian sects are Maronites, Greek Orthodox, Greek Catholics, Armenian Orthodox, Armenian Catholics, Evangelicals and other Christian minorities. Muslims comprise the Sunni, Shi'a, Alawite and Druze sects.

[37]Figure A1 is comparable to figures in Montalvo and Reynal-Querol (2005) and Bazzi et al. (2019) which respectively show the relationship between (i) religious F and P using cross-country data and, (ii) ethnic F and P in Indonesian villages.

[38]These districts are Nabatie, Keserwan, Bent Jbeil, Tyre, Saida, Zgharta and Tripoli.

[39]These districts are: Akkar, Aley, Baalbek, Batroun, Chouf, Jbeil, Jezzine, Koura, Marjayoun, West Bekaa, Zahrani, as well as the second and third Beirut electoral districts.

and Maronite Christians=24.3%) resulting in a high P of 0.78.[40] The third region groups highly-fractionalized districts (F greater than its 75th percentile of 0.72 and P <0.67), with P and F negatively correlated.[41] Examples include Baabda and Zahle which respectively comprise 7 and 8 sects, each with a non-negligible share of registered voters, resulting in a high F and lower P.[42]

6.2.2 Heterogeneity Analysis Results

Tables 10 and 11 respectively report heterogeneous effects for our two main outcomes, 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-diverse districts, while Columns (2) and (3) respectively comprise students whose high schools are in highly-fractionalized and highly-polarized districts. We do not impose any restrictions on the location of peers' high schools.

Table 10 reveals that intergroup contact benefits Islamic students whose high schools are located in non-diverse and highly-fractionalized districts. Indeed, Islamic students whose high schools are in low-diversity districts experience a 13.7 and 17.4 percent of a standard deviation increase in their first-year GPA when exposed to a one standard deviation higher share of secular and Christian peers (relative to Islamic peers), respectively. Islamic students whose high schools are in highly-fractionalized districts also increase their first-year GPA by 8.3 and 13.2 percent of a standard deviation due to their secular and Christian peers. On the other hand, intergroup contact has no statistically significant impact on the GPA of Islamic students whose high schools are in highly-polarized districts. Furthermore, secular students whose high schools are in highly-polarized districts see a 4.5 percent of a standard deviation drop in their first-year GPA due to a one standard deviation higher proportion of Islamic versus secular peers.

We also examine how instructor choice effects vary with the religious diversity of high schools' districts in Table 11. Columns (1) to (3) show that Islamic students whose high schools are in highly-fractionalized districts are driving the overall impacts on Islamic students' instructor choice. Specifically, Islamic students in these districts are 3.3 percent-

[40]The three remaining sects—Shi'a, Sunni and Greek Catholic Christians—constitute around 3% of registered voters each.

[41]The highly-fractionalized districts in our sample are Baabda, the first electoral district of Beirut, Maten and Zahle.

[42]The religious composition of Baada is as follows: 37.6% Maronite Christians, 23.7% Shi'a, 17.2% Druze, 7.8% Greek Orthodox Christians, 5.8% Sunni, 4.8% Greek Catholic Christians and 3.1% Christian minorities. For Zahle, the different religious shares are: 27% Sunni, 19% Greek Catholic Christians, 16% Maronite Christians, 15% Shi'a, 10% Greek Orthodox Christians, 5.4% Armenian Orthodox Christians, 4.5% Christian minorities and less than 3% Armenian Catholic Christians.

age points less likely to take courses with Muslim teachers due having a one standard deviation higher proportion of secular versus Islamic peers. They are also 3.9 percentage points less likely to take courses with Muslim instructors when matched to a higher share of Christian versus Islamic peers—although this estimate is not statistically significant at conventional levels. We detect no significant effects on instructor choice for Islamic students coming from low-diversity and highly-polarized districts.

Taken together, these results indicate that intergroup contact is beneficial for students from highly-fractionalized districts, but may have some negative effects on students from highly-polarized districts. These findings are consistent with previous studies showing that highly-fractionalized communities foster integration, while highly-polarized communities exacerbate intergroup antagonism, ethnic attachment and conflicts (Montalvo and Reynal-Querol, 2005; Bazzi et al., 2019). Our results further indicate that the effects of inter-religious contact may depend on the degree and type of diversity that students are exposed to prior to the peer interaction.

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' trust towards other religions.

We further show that effects depend on the type 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 highly-fractionalized districts. On the other hand, the negative impact on secular students' GPA is driven by those whose high schools are located in polarized districts. These results are in line with previous studies indicating that fractionalization promotes integration, while polarization increases conflicts and ethnic attachment (Montalvo and Reynal-Querol, 2005; Bazzi et al., 2019). They also suggest that when esti-

mating the impacts of intergroup contact, it is important to take into account the type of diversity that peers are exposed to prior to any interactions.

Our findings have important implications for education and social policy. First, our study is the first to show 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 trust between different religions. Finally, the academic and behavioral benefits we document provide support for arguments in favor of increasing diversity in college, and highlight the importance of postsecondary institutions in fostering trust between different groups.

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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

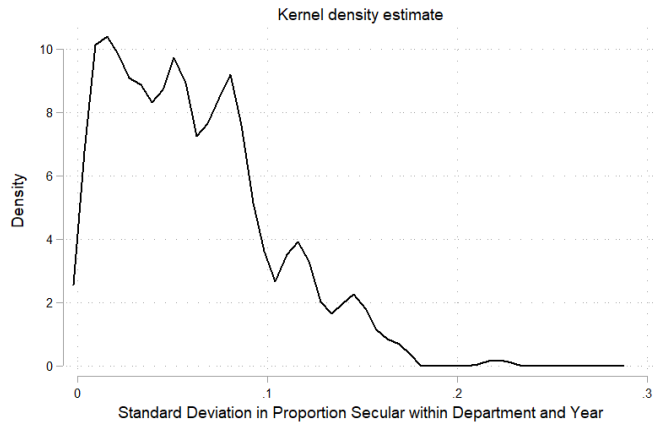
(d) Male students at Sunni school praying in Mosque

(e) Shi'a school students celebrating Ayatollah Khamenei

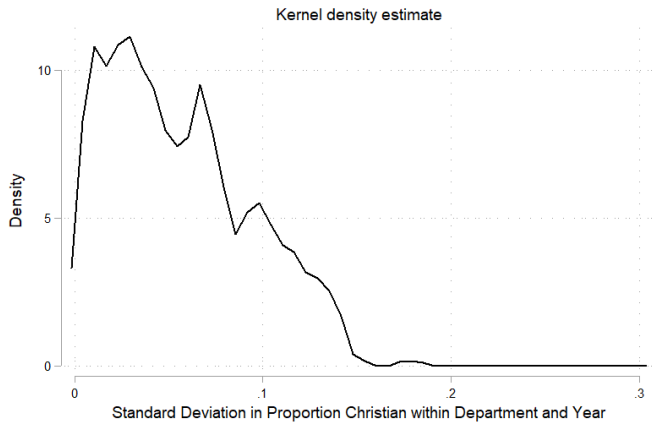
(f) Shi'a school students visiting Hezbollah martyrs memorial

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.

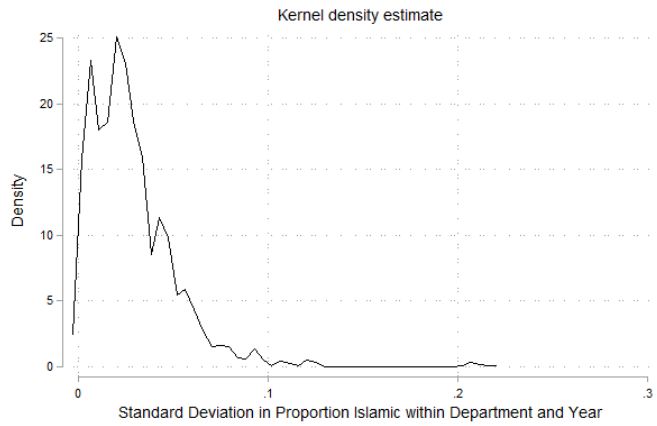
Figure 2: Standard Deviation in Proportion of Religious School Peers within University Department and Year



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



(b) Standard Deviation in Proportion of secular 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)
Verbal SAT	536.404	540.615	538.669	496.050
	(112.554)	(109.335)	(113.369)	(123.249)
Legacy Status	0.244	0.273	0.206	0.196
	(0.429)	(0.445)	(0.405)	(0.397)
B. Student Level Outcomes				
First-Year GPA	77.722	77.452	78.200	77.516
	(7.994)	(8.051)	(7.770)	(8.468)
Dropout	0.163	0.171	0.152	0.166
	(0.370)	(0.376)	(0.359)	(0.372)
Graduate in 4 years	0.539	0.535	0.571	0.409
	(0.499)	(0.499)	(0.495)	(0.492)
Graduate in 6 Years	0.777	0.775	0.787	0.738
	(0.416)	(0.417)	(0.409)	(0.440)
Graduation GPA	79.732	79.556	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
	(0.458)	(0.463)	(0.453)	(0.452)
Tenured Advisor	0.335	0.336	0.324	0.372
	(0.472)	(0.472)	(0.468)	(0.484)
Peer Group Size	63.299	62.904	65.771	55.062
	(56.865)	(54.658)	(62.441)	(43.966)
Proportion Secular School Peers	0.593	0.599	0.587	0.588
	(0.095)	(0.095)	(0.093)	(0.105)
Proportion Christian School Peers	0.334	0.330	0.341	0.334
	(0.088)	(0.087)	(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	-0.00112	0.00405	-0.00016	0.00002	0.000003
	(0.00130)	(0.00232)	(0.00127)	(0.00002)	(0.00002)
Proportion Islamic	0.00154**	-0.00240	-0.00072	-0.000006	-0.000004
	(0.00063)	(0.00165)	(0.00064)	(0.000007)	(0.000007)
Proportion Secular	-0.00043	-0.00157	0.00087	-0.00002	0.000008
	(0.00142)	(0.00241)	(0.00150)	(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)	1/178	1/178	0/180	1/180	0/155
B. Test for Advisor Characteristics					
Female Advisor	-0.003	0.002	-0.035	0.001	0.029
	(0.034)	(0.033)	(0.029)	(0.027)	(0.030)
Associate/Full Professor	-0.007	0.024	0.011	-0.017	-0.028
	(0.030)	(0.030)	(0.026)	(0.027)	(0.028)
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 test 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 Year Course-Taking Behavior

	(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***	-0.035	-0.122***
	(0.009)	(0.029)	(0.036)
Proportion Christian school peers	0.003	0.088***	-0.056***
	(0.0025)	(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 course-level regression. Sample includes all first time entering students from the academic years 2002 to 2017. Student controls include gender, Math and Verbal 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	0.015	-0.004	0.015
	(0.015)	(0.015)	(0.016)
Islamic relative to secular school peers	-0.036***	-0.037***	-0.030**
	(0.013)	(0.013)	(0.014)
Religious diversity for students from Christian schools			
Secular relative to Christian school peers	0.005	0.018	-0.001
	(0.019)	(0.017)	(0.018)
Islamic relative to Christian school peers	-0.026	-0.016	-0.032
	(0.022)	(0.020)	(0.022)
Religious diversity for students from Islamic schools			
Secular relative to Islamic school peers	0.033	0.047*	0.041
	(0.027)	(0.028)	(0.027)
Christian relative to Islamic school peers	0.095**	0.100***	0.099***
	(0.039)	(0.038)	(0.036)
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	12,590	12,590

Notes: Sample includes all first time entering students from the academic years 2002 to 2017. Student controls include gender, Math and Verbal 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: 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*	0.024	0.021	-0.033*
	(0.008)	(0.017)	(0.016)	(0.017)
Islamic relative to secular school peers	-0.0002	-0.026*	-0.017	-0.045***
	(0.006)	(0.016)	(0.015)	(0.014)
Religious diversity for students from Christian schools				
Secular relative to Christian school peers	0.005	0.008	0.010	0.023
	(0.008)	(0.020)	(0.017)	(0.019)
Islamic relative to Christian school peers	0.007	-0.004	-0.007	-0.007
	(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)	(0.043)
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	12,590	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, Math and Verbal 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 7: Effect of Religious Diversity on Teacher Religion

	(1) *Teacher same religion as student*	(2) *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)
Islamic relative to secular school peers	-0.001	-0.002
	(0.003)	(0.003)
Religious diversity for students from Christian schools		
Secular relative to Christian school peers	0.001	0.005
	(0.005)	(0.005)
Islamic relative to Christian school peers	0.001	0.004
	(0.007)	(0.006)
Religious diversity for students from Islamic schools		
Secular relative to Islamic school peers	-0.016**	-0.016**
	(0.008)	(0.008)
Christian relative to Islamic school peers	-0.002	- 0.011
	(0.013)	(0.013)
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	43,167	43,167

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 8: 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***	-0.045***	-0.049***
	(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	0.018	0.013
	(0.017)	(0.017)	(0.019)	(0.020)
Islamic relative to Christian school peers	-0.015	-0.010	-0.013	-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	0.011	0.002
	(0.027)	(0.027)	(0.029)	(0.030)
Christian relative to Islamic school peers	0.110***	0.108**	0.103**	0.110**
	(0.038)	(0.038)	(0.050)	(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	Yes	Yes	Yes	Yes
Peer Gender	No	Yes	Yes	Yes
Peer Language	No	No	Yes	Yes
Peer Socioeconomic Status	No	No	No	Yes
N	12,590	12,590	11,558	11,537

Notes: Sample includes all first time entering students from the academic years 2002 to 2017. Student controls include gender, Math and Verbal 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 9: 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	0.001	0.003
	(0.006)	(0.006)	(0.006)	(0.006)
Islamic relative to Christian school peers	0.001	0.001	-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	Yes	Yes	Yes	Yes
Peer Gender	No	Yes	Yes	Yes
Peer Language	No	No	Yes	Yes
Peer Socioeconomic Status	No	No	No	Yes
N	42,895	42,895	42,895	42,895

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

	(1) Low-Diversity Districts *First-Year GPA*	(2) Highly-Fractionalized Districts *First-Year GPA*	(3) Highly-Polarized Districts *First-Year GPA*
Religious diversity for students from secular schools			
Christian relative to secular school peers	-0.053	-0.002	-0.011
	(0.048)	(0.025)	(0.019)
Islamic relative to secular school peers	-0.045	-0.015	-0.044***
	(0.040)	(0.025)	(0.016)
Religious diversity for students from Christian schools			
Secular relative to Christian school peers	0.007	0.032	-0.059
	(0.041)	(0.020)	(0.038)
Islamic relative to Christian school peers	-0.039	0.008	-0.115**
	(0.054)	(0.025)	(0.045)
Religious diversity for students from Islamic schools			
Secular relative to Islamic school peers	0.137**	0.083**	-0.018
	(0.061)	(0.041)	(0.039)
Christian relative to Islamic school peers	0.174**	0.131**	0.043
	(0.088)	(0.063)	(0.060)
Department and Year Fixed Effects	Yes	Yes	Yes
Student and Advisor Controls	Yes	Yes	Yes
Department Linear Trend	Yes	Yes	Yes
N	1,490	5,162	5,522

Notes: Sample includes all first time entering students from the academic years 2002 to 2017. Student controls include gender, Math and Verbal 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

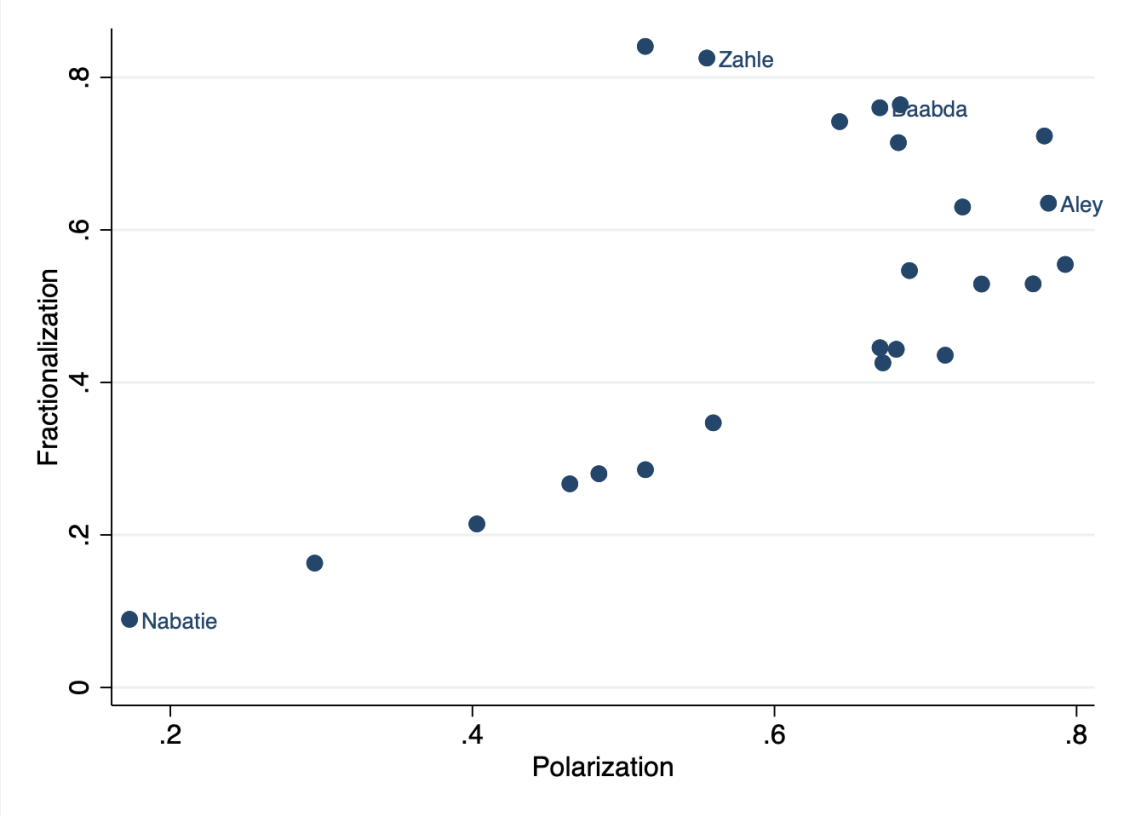
Table 11: Effects on Teacher Religion: Heterogeneity based on religious diversity of high school's location

	(1) Low-Diversity Districts *Teacher Same Religion*	(2) Highly-Fractionalized Districts *Teacher Same Religion*	(3) Highly-Polarized Districts *Teacher Same Religion*
Religious diversity for students from secular schools			
Christian relative to secular school peers	0.003	-0.005	-0.015***
	(0.015)	(0.008)	(0.005)
Islamic relative to secular school peers	-0.009	-0.013*	0.007
	(0.011)	(0.007)	(0.005)
Religious diversity for students from Christian schools			
Secular relative to Christian school peers	-0.013	0.010	-0.011
	(0.015)	(0.007)	(0.014)
Islamic relative to Christian school peers	-0.005	0.001	-0.007
	(0.019)	(0.008)	(0.018)
Religious diversity for students from Islamic schools			
Secular relative to Islamic school peers	0.014	-0.033**	-0.012
	(0.030)	(0.015)	(0.012)
Christian relative to Islamic school peers	0.038	-0.039	0.017
	(0.044)	(0.029)	(0.017)
Department and Year Fixed Effects	Yes	Yes	Yes
Student and Advisor Controls	Yes	Yes	Yes
Department Linear Trend	Yes	Yes	Yes
N	4,231	14,853	16,198

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, Math and Verbal 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: Relationship between F and P



Notes: This figure plots the relationship between electoral districts' fractionalization (F) and polarization (P) indices.

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	0.051***	-0.033*	-0.108***
	(0.012)	(0.018)	(0.029)
Proportion Christian school peers	0.005	0.071***	-0.013
	(0.005)	(0.014)	(0.020)
Students from Christian schools			
Proportion Islamic school peers	0.082***	-0.054	-0.116**
	(0.009)	(0.040)	(0.048)
Proportion Christian school peers	0.000	0.078***	-0.076***
	(0.002)	(0.019)	(0.022)
Students from secular schools			
Proportion Islamic school peers	0.084***	-0.029	-0.133***
	(0.010)	(0.029)	(0.039)
Proportion Christian school peers	0.005*	0.098***	-0.050**
	(0.003)	(0.014)	(0.021)
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 course-level regression. Sample includes all first time entering students from the academic years 2002 to 2017. Student controls include gender, Math and Verbal 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 Advisor Peer Group in Class*
1st-year courses with more than one section identified			
Proportion Islamic school peers	0.049***	-0.017	-0.089***
	(0.005)	(0.017)	(0.027)
Proportion Christian school peers	0.000	0.057***	-0.036**
	(0.001)	(0.012)	(0.018)
N	67,762	67,762	67,762
All courses taken in all years			
Proportion Islamic school peers	0.059***	-0.016	-0.055***
	(0.006)	(0.019)	(0.0227)
Proportion Christian school peers	0.000	0.066***	-0.037***
	(0.002)	(0.011)	(0.014)
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, Math and Verbal 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 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
	(0.012)
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.