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What Does Your Major Say About You? Selection, Socialization, and Person-Environment Fit in the Context of Personality Development

Leah Schultz
Washington University in St. Louis

WASHINGTON UNIVERSITY IN ST. LOUIS
Department of Psychological & Brain Sciences

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by
Leah Schultz

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Chapter 1: Introduction

A young adult's years spent at a four-year undergraduate institution constitute a critical time in human development. With the vast array of social, academic, and extracurricular options available for an undergraduate to explore, it is unsurprising that during this time, individuals change in relatively drastic ways compared to other parts of the lifespan (Arnett, 2000; Donnellan, Conger, & Burzette, 2007). A dizzying array of factors may contribute to an individual's development during the college years: being away from home for the first time, interacting with professors, TAs, friends, and romantic partners, and involvement in academic projects, internships, and university organizations may all contribute to individuals developing in certain ways during this time. Though research continues into the extent to which personality change in young adulthood is driven by both biological and by environmental factors (Bleidorn et al., 2014; Specht et al., 2014), it is clear that personality change occurs for many individuals during this time.

1.1 Selection and socialization during college

Major selection is a concrete way in which students may actively forge their own unique developmental path during their undergraduate careers. Individuals have predispositions towards certain activities and are naturally drawn to engaging with the people, activities, and interests that they prefer (Rounds & Su, 2014). Previous studies find that specific academic majors are indeed associated with certain Big Five personality traits. In a six-year prospective panel study of Dutch students, highly extraverted students were more likely to choose majors in business or economics and less likely to select majors in the STEM (Science, Technology, Engineering, and Mathematics) fields (Humburg, 2012). Meanwhile, conscientious students were likely to enter medical school, and neurotic students to choose majors in the social sciences and humanities and

not in the STEM fields. Similarly, a meta-analysis found that students high in extraversion are drawn to major in economics, law, political science, and medicine, while individuals who choose careers in the humanities, arts, or social sciences are on average less conscientious and more open (Vedel, 2016). On the other hand, individuals who choose to major in the arts and humanities tend to be more neurotic, while those who choose economics or business tend to be less neurotic. Finally, individuals who are less agreeable are more likely to choose majors in law, business, and economics. Thus, selection processes operate when students enter college whereby students select majors based on their personality traits.

Robust associations between *occupation* selection and personality traits lend additional insight into the interplay between specific career paths and the personalities who select into them. Occupations are often grouped in terms of Holland's RIASEC model of vocational interests, which offers a richer characterization of the different career paths students may choose. A prospective study tracking career choices of college alumni found that those who choose careers characterized as Realistic (hands-on, practical occupations) tend to be less neurotic; those who chose Enterprising careers (business or sales positions) tend to more extraverted, more conscientious, and less neurotic, and those who choose Social careers (the helping professions) tend to be more extraverted, agreeable, and open. Meanwhile, those who choose Investigative careers (often in medicine, academia, or the sciences) tend to be less agreeable and more conscientious, those who choose careers that are Artistic (creative occupations) tend to be more open, and those who choose careers are classified as Conventional (concrete tasks and organizational skills) tend to be less open (Wille & De Fruyt, 2014). Furthermore, a large panel study classifying majors according to the RIASEC model indicated that students pursuing Realistic majors (criminal justice and political science) were more extraverted and conscientious,

those pursuing Investigative majors (social sciences, biology) were more open and agreeable, and students majoring in Artistic programs (art, English, music, theatre) were more open (Kaufman, Pumaccahua, & Holt, 2013). These tendencies indicate that people may choose certain clusters of majors and, ultimately, career paths, based on their unique characteristics.

Despite the accumulation of evidence for selection effects, it has been more difficult to establish whether relationships between personality traits and choice of major are the result of students selecting into particular majors, or changing as a response to time spent in the major. As no studies have explicitly tracked personality *change* as a function of college major, the question remains whether specific majors exert socialization pressures during college. Despite the lack of studies relating college major to personality change, there is evidence for socialization processes operating on constructs related to personality. For example, a study of goal change during young adulthood found that students may change in certain ways depending on their perceptions of others' goals within their major (financial success and image for economics majors, affiliation and community for medical majors; Hill et al., 2015). Importantly, students increased on the goals that they *perceived* the peers in their major to hold rather than the goals that the peers actually held. In another longitudinal study, German students who majored in the "hard sciences" (business, engineering, natural sciences) compared to those who majored in the "soft sciences" (social sciences, humanities), adopted higher certainty beliefs over time than those, believing scientific theories to be more stable and irrefutable than their peers did (Trautwein & Lüdtke, 2007). Thus, immersion in particular programs of study may indeed mold certain individual differences over time.

Though there exists no study linking personality development to major selection, there is evidence for socialization of personality traits as a function of career path more broadly defined.

Individuals who began vocational training or work after graduating from high school increased faster in conscientiousness than young adults who entered college, while those who went to college increased faster in agreeableness than those who took vocational paths, despite no evidence of corresponding selection effects (Lüdtke, Roberts, Trautwein, & Nagy, 2011). In addition, research relating personality change to occupational choice found that over 15 years, people changed in ways that were independent of corresponding selection effects (Wille & De Fruyt, 2014). Specifically, those employed in Realistic occupations became less neurotic and more conscientious, those employed in Enterprising or Conventional occupations became less open and less agreeable, and people employed in Realistic and Investigative occupations became more agreeable. Further, as other literature has found socialization processes to occur in the workplace, such as employees' values becoming more aligned with those of their organization (De Cooman et al., 2009), it is reasonable to expect that similar processes may operate on personality, within specific academic majors.

1.2 Person-environment fit and personality development

Outside of narrow environments like majors or occupations, socialization processes occur more broadly across the lifespan to promote personality development. While selection effects may set the stage for change, pressure from the environment to behave in line with certain expectations, such as those attached to the role of college student, may then promote development (Roberts & Jackson, 2008). When individuals are surrounded by people who are similar to them in their behaviors, values, and goals, this harmony between person and environment may provide stability such that individuals are consistently rewarded for certain types of behaviors and thus, over time, experience more permanent changes in personality (Roberts, Caspi, & Moffitt, 2003). In order to understand how this relationship between the

person and their surroundings develops, it is useful to consider the concept of *person-environment fit (*P-E fit). Person-environment fit is an index of the extent to which a particular context accommodates, complements, or matches the characteristics of an individual. Person-environment fit may be assessed most simply by measuring the similarity of an individual's characteristics to his environment. Since environments can be characterized in terms of the traits of the people who constitute them (Holland, 1997), the aggregate of individuals' responses to a questionnaire is often used as a proxy for the characteristics of the environment. In addition, there are considerable differences in how researchers may assess fit. Distinctions may be made between *objective (*or *alpha) fit*, *perceived (*or *beta) fit,* and *subjective* fit (Kristof, 1996). Objective measures of fit compare the individual to the aggregate environment, while measures of perceived fit compare the individual to his perceptions of the aggregate environment, and subjective measures assess individuals' self-reported fit in the environment.

Objective, subjective, and perceived fit may relate to personality development in different ways. In a four-year longitudinal study of college students, objective fit was related to decreases in agreeableness and neuroticism during the college years, while perceived fit was more closely related to increases in conscientiousness (Roberts & Robins, 2004). Similarly, for students at Harvard University, an environment that "pulls" for valuing abstract thought and being interested in science, both higher objective fit and perceived fit were related to increases in openness over four years (Harms, Roberts, & Winter, 2006). Thus, in line with the corresponsive principle of personality development, the same traits that led to better fit were the ones that increased over time (Roberts, Caspi, & Moffitt, 2003). However, perceived fit was more strongly related to changes in openness than objective fit, and perceived fit was related to decreases in extraversion, though objective fit was not. These different relationships between varying conceptualizations of

P-E fit highlight the necessity to more clearly understand the myriad ways in which person-environment fit can be calculated and how these different indices relate to specific outcomes.

Though research directly linking person-environment fit and personality development is limited, research on outcomes beyond personality can help us to understand how different operationalizations of P-E fit may relate to different constructs. The idea of a match between the attributes of people and their environments has been examined for decades, under the guise of various names: examples include person-organization fit (Borg, Groenen, Jehn, Bilsky, & Schwartz, 2011), person-occupation fit (Hoffman & Woehr, 2006), interest congruence (Su, 2012; Rounds & Su, 2014), and student-institution fit (Bowman & Denson, 2013). Researchers from other disciplines, such as educational and industrial-organizational psychology, have highlighted the importance of fostering person-environment fit in order to promote health, productivity, and work satisfaction (Cable & DeRue, 2002; Tracey, Allen, & Robbins, 2012).

Research from other disciplines has directly compared varied conceptualizations of fit within the same study in order to understand their relationships to important outcomes. For example, a meta-analysis found that better person-organization fit, defined as an individual's values aligning with those of his organization, predicted behavioral outcomes such as job turnover, task performance, and organizational commitment behavior (Hoffman & Woehr, 2015). However, subjective fit was not only more weakly related to behavioral outcomes than perceived and objective fit were, but was less related to job turnover than to other outcomes, whereas perceived fit, for example, was most strongly related to job turnover compared to other employee behaviors. Indeed, perceived fit is a construct more closely linked to other subjective measures like satisfaction than objective fit (Yu, 2016). In addition, prior research has adapted measures of person-organization fit and organizational commitment behavior to investigate

college students' socialization and academic adjustment in their chosen majors and subsequent career paths. The results suggest that socialization tactics used by college administrations, departments, and older peers affect positive academic outcomes like higher GPA primarily through better perceived person-major fit, and they affect interpersonal outcomes like helping behaviors through increased person-group (or peer) fit (Chen & Yao, 2015).

1.3 Values

While person-environment fit can be measured using constructs like personality traits and life goals, the degree of similarity between individuals' values and those of their environments can also predict fit into educational or occupational settings. When perceived value congruence is used as a subjective measure of person-organization fit, value fit perceptions are related to organizational identification, citizenship behaviors, and whether employees decide to remain at the organization (Cable & DeRue, 2002). Similarly, when employees are asked to identify how important specific values are to them and how important they are to their organization (an index of *perceived fit*), perceived value congruence again predicts outcomes such as job satisfaction, intent to stay, and organizational identification, independently of other types of fit (Cable & Edwards, 2004), and again highlighting its relationship with measures of satisfaction compared to objective measures of fit. Other research that links value fit to need fulfillment uses self-determination theory (SDT) to explain that when employees' and organizations' values are aligned, organizations are more likely to provide an environment that satisfies employees' basic psychological needs, which leads to favorable employee outcomes (Greguras & Diefendorff, 2009). Employees who share similar values with their coworkers also report liking others and being liked by others more than employees who did not share similar values with their coworkers (though value fit with coworkers did not predict job performance). This indicates that these daily

interactions may provide a comfortable, supportive environment in which individuals can fully invest in their roles and respond willingly and positively to environmental demands.

1.4 Present Study

The present study examines participants in a college setting during emerging adulthood, a formative time for development. The study's aims are twofold. The first aim is to identify processes of selection within the context of college majors, with the goal of highlighting which personality characteristics and personal values are salient for specific educational paths. The second aim is to understand mechanisms of socialization through the lens of college major, person-environment fit, and life satisfaction. The current study uses the following constructs to predict intra-individual differences in personality change: 1) self- and informant-reports of similarity of personality and values to the respective major environment (indices of *objective fit*); 2) self- and informant-reports of fit at college (an index of *subjective fit*); and 3) indices of *life satisfaction* and *college satisfaction*.

The present study not only has the advantage of tracking both personality and choice of major early on in individuals' undergraduate careers, but also measures individuals' personality traits at seven different time points over two years, allowing for a more nuanced look at individual trajectories. In addition, very few studies have systematically examined the relationship between different academic majors and the values of the students who select into them. It is necessary to highlight these relationships in order to understand the psychological implications of immersion in particular educational and occupational paths. Finally, major selection provides a unique glimpse into the interplay between personality and interests, two related but clearly orthogonal constructs (Wille et al., 2014), which allows for a more thorough understanding of the varied career paths that individuals can select into based on their unique

constellations of traits. Understanding individuals in the more immediate, micro-context of the peers within their specific major is an important step toward understanding the daily interactions that constitute students' experiences at school (Hill et al., 2015).

Chapter 2: Method

2.1 Sample

Participants from a mid-sized, private Midwestern university completed a series of in-lab and online home assessments. The Month 1 assessment was completed at the beginning of the fall semester (in-lab; N = 403), and assessments continued in four-month intervals at Month 5 (online; N = 235), Month 9 (online; N = 214), Month 13 (in-lab; N = 220), Month 17 (online; N = 111), Month 21 (online; N = 135), and Month 25 (in-lab; N = 98). Participants were an average of 18.95 years old (SD = 1.22, range = 18 to 24) at Month 1. In order to stay consistent with the assumptions of person-environment fit theory (e.g., the continual press of a shared, consistent environment), students were excluded from analyses if they attended a different university or if they were not currently pursuing a bachelor's degree; this resulted in 33 students being dropped from analyses. The majority of the 380 remaining participants (259 female) were freshmen (57%) at Month 1, while the remainder of the sample consisted of sophomores (22%), juniors (10%), and seniors (11%). Most of the sample identified their race as White (54%), while the remainder identified as Asian or Asian-American (24%), Black or African-American (11%), some combination of the above (7%), or American Indian/Alaska native, Native Hawaiian/Pacific Islander, or Other (2%).

2.2 Measures

2.2.1 Year in school. Participants selected their current year in school at Month 1 and were coded as follows: freshman (1), sophomore (2), junior (3), and senior (4). Year in school was thus treated as a continuous variable and used as a covariate for all growth analyses.

2.2.2 College major. Majors were grouped into five categories: business, engineering, social sciences, humanities, and natural sciences. Because many students were pursuing two

majors, a dichotomous variable was created for each major type, and each student received a "0" or a "1" for each category. For example, a student majoring in French and marketing would receive the following dummy codes for each of the college major variables: business (1); engineering (0); social sciences (0); humanities (1); natural sciences (0). In addition, students who responded "yes" to the item "Are you pre-med?" received a 1 for their natural sciences major score, regardless of their major. Students majoring in Philosophy-Neuroscience-Psychology (PNP) received a "1" code for the social sciences, humanities, and natural sciences categories. Thirty-one percent of the students in the sample were pursuing majors in more than one of the five categories, or a single major that spanned multiple disciplines (e.g., Philosophy-Neuroscience-Psychology). A STEM classification (0 = no; 1 = yes) was also assigned to each participant to allow for a broader comparison of STEM vs. non-STEM majors; participants were classified as STEM if they were majoring in either engineering or the natural sciences. A comprehensive list of participants' majors and their respective major type codes are available in Appendix A. To maximize the amount of academic major data available, major category was coded based on the most recent information available from Month 1 and 13. Many students had not declared a major by Month 1 but had by Month 13, which indicates that they were likely taking relevant classes in their declared major at Month 13 as early as Month 1. Four students had not declared a major by Month 13 and were not included in analyses relevant to major category.

2.2.3 Personality: Self-report. Personality was assessed using the 44-item Big Five Inventory (John & Srivastava, 1999). Participants rated the degree to which characteristics described them using Likert scales from 1 (Disagree strongly) to 15 (Agree strongly). Items were grouped into Big Five composites at each wave, with the following Cronbach's alpha reliability

at Month 1: extraversion (α = .90); agreeableness (α = .82); conscientiousness (α = .86); neuroticism (α = .85); openness (α = .79). Alpha values were comparably high across the subsequent six assessment periods.

2.2.4 Personality: Friend-report. Each of the participants nominated up to 10 informants at Month 1. These informants rated participants on the same 44-item BFI scales used for the self-reports. Informant reports of target's personality at Month 1 were available for 181 of the 380 participants. The majority of these participants had informant reports from one friend (N = 103), while the remaining participants had reports from two friends (N = 54), three friends (N = 19), four friends (N = 3), or five friends (N = 1). An average of available informant reports was created for each participant, using data from 7 of the 10 informants which were friends of varying closeness to the participant: current romantic partner, best friend in current city of residence, friend or roommate in current city of residence, hometown friend, friend of the opposite sex, and two other friends. Informant reports from ex-romantic partners, parents, and siblings were not included, so as to create a more homogenous pool of informants who knew the participant in similar contexts. Pooled informants for each participant had known the participant for an average of 5.18 years (range = 1 to 22 years). Cronbach's alpha reliability: extraversion (α = .88); agreeableness (α = .88); conscientiousness (α = .90); neuroticism (α = .87); openness (α = .84). Correlations between self- and informant-reports of personality were comparable to prior research (e.g., Vazire, 2010): extraversion, r = .52 [.40, .62]; agreeableness, r = .28 [.14, .41]; conscientiousness, r = .39 [.26, .51]; neuroticism, r = .45 [.33, .56]; openness, r = .38 [.25, .50].

2.2.5 Values. At Month 1, participants completed the Short Schwartz's Value Survey (SSVS; validated version of the longer Schwartz's Value Survey: see Lindeman & Verkasalo,

2005). They rated the importance that they would give to 10 different "life-guiding principles", such as "power", "hedonism", and "benevolence". Participants could respond either with "Opposed to my principles" or rate the personal importance of that value from 1 (Not important) to 7 (Of supreme importance). The responses were recoded as continuous, with a score of 1 assigned to "Opposed to my principles", 2 to "Not important", and 8 to "Of supreme importance."

2.2.6 Subjective person-environment fit. At Month 1, participants responded to the question "How much do you feel like you fit in at your college/university?" on a Likert scale from 1 (Not at all) to 7 (Very much) (M = 5.48, SD = 1.39, range = 1 to 7).

2.2.7 Informant-rated subjective person-environment fit: At Month 1, participants' romantic partners (N = 36) and best friends in their current city of residence (N = 108) responded to the question, "How much does [participant's name] feel like he/she fits in at his/her college/university?" on a Likert Scale from 1 (Not at all) to 7 (Very much), averaging responses when ratings from both romantic partners and best friends when available (M = 5.45, SD = 1.14, range = 2 to 7).

2.2.8 Objective person-environment fit. Several different indices of objective P-E fit were assessed using profile correlations. For each profile correlation, average scores were first computed for each of the items across the entire sample. To correct for normativeness (Furr, 2008), each individual's score was then centered. Each individual profile of centered scores was then correlated with the sample's average profile of scores on those traits (either personality or values; detailed further, below) in order to obtain a distinctive profile correlation for each individual. These profile correlations were used as indices of objective person-environment fit in the context of both personality and value similarity. An index of person-environment fit using

students' scores relative to the average of the entire sample was also prepared for analysis, but this measure was strongly correlated with the measure of fit using the fit scores relative to the students' selected majors, to the point of being nearly identical. This may be because the majority of students had declared more than one major and thus had fit scores that were averages of their fit scores within each of their majors. Thus, only the score relative to the individual's respective major(s) was used in analyses and will be reported as an index objective person-environment fit.

2.2.9 Objective person-environment fit: Personality. To calculate an individual's fit within the university environment using personality similarity as a proxy, students' profiles of scores on the five BFI composites at Month 1 were correlated with the average profile of the five BFI composites of the peers in their academic majors at Month 1. Mean of personality profile correlations = .07, *SD* = .52, range = -.96 to .99.

2.2.10 Objective person-environment fit: Values. To calculate an individual's fit within the university environment using value similarity as a proxy, students' profiles of SSVS scores at Month 1 were correlated with the university average profile of SSVS scores at Month 1. Mean of values profile correlations = .03, *SD* = .40, range = -.96 to .82.

2.2.11 Informant-rated objective person-environment fit: Personality. To calculate an individual's fit within the university environment using informant reports, profiles of informants' ratings on the five BFI composites at Month 1 were correlated with the average profile of informants' ratings for peers in the students' selected majors at Month 1. Mean of informant-rated personality profile correlations = .05, SD = .61, range = -.92 to 1.00.

2.2.12 Life satisfaction. Participants rated their satisfaction within 10 different life domains, on a Likert scale from 1 (Completely dissatisfied) to 15 (Completely satisfied). Items

included, “How satisfied are you with your: family? … friendships? …physical health?” Cronbach’s alpha of the 10-item life satisfaction scale was .82.

2.2.13 College satisfaction. Participants rated their satisfaction with 20 different aspects of their college experience, on a Likert scale from 1 (Completely unsatisfied) to 7 (Completely satisfied). Items included, “Academic advising/mentoring”, “Social life on campus”, and “Dorm/floor life”. Cronbach’s alpha of the 10-item college satisfaction scale was .88.

Chapter 3: Analyses

3.1 Attrition analyses. Attrition analyses were conducted to compare participants who did not complete assessments past Month 1 with those who did. Participants who had dropped out by Month 9 rated "power" as more important in their lives (d = .21 [.01, .41]) and "benevolence" as less important (d = -.20 [-.40, .00]) at Month 1 compared to those who remained in the study. In addition, students who were more extraverted at Month 1 were more likely to discontinue the study by Month 13 (d = .20 [.00, .41]), whereas those who rated "stimulation" as more important in their lives at Month 1 were less likely to complete the last assessment, at Month 25 (d = .30 [.05, .54]). As may be expected, students who did not participate beyond Month 1 tended to be further along in their studies (Month 9: d = .36 [.15, .56]; Month 13: d = .25 [.05, .45]; Month 21: d = .34 [.13, .55]; Month 25: d = .35 [.10, .59]). Participants did not score differently at Month 1 on any of the other variables if they did or did not participate in future assessments.

3.2 Personality change models

Latent growth models were constructed to analyze change in each of the Big Five personality traits from Month 1 to Month 25, using available data from all seven time points. For each personality trait, the self-reported BFI items (ranging from eight to ten items per trait) were averaged into three parcels for each of the seven time points. For each model, a latent intercept and a latent change score were specified from these item parcels. Each covariate (six types of majors, and seven indices of person-environment fit and satisfaction) was entered into a separate model as a predictor of both the intercept and the slope of the personality items. Year in school, as reported at Month 1, was entered as a covariate predicting both the intercept and the slope for all analyses, to account for variance in personality levels and personality change attributable to time already spent in the university setting.

To explore selection effects for values in each academic major, each of the ten SSVS value items was regressed on each of the major type variables, with year in school again entered as a covariate. Because the SSVS was only administered at Month 1, it was not possible to explore possible socialization effects on participants' values.

Chapter 4: Results

4.1. Personality: Mean-level change and individual differences in change

How did students' personality traits change over two years? Table 1 displays the average mean-level change across the sample, indicated by the mean of the slope from the change models before covariates were entered. Participants become more open on average over two years (b = .09 [.02, .16]). Participants also varied in the degree to which they changed, indicated by significant variance estimates for the slope parameters of all five personality traits.

4.2 Selection effects: Personality traits

Did students with certain personality traits tend to select certain academic majors? Table 2 displays estimates for the intercept coefficients from the latent growth models conducted with membership in each of the majors as a dichotomous variable.

Participants who chose to major in engineering were less extraverted at Month 1 than those who did not major in engineering (b = -.80 [-1.54, -.06]), and were also less neurotic (b = -.79, [-1.46, -12.]). Participants who chose to major in the humanities were more open at Month 1 (b = .87 [.46, 1.29]), while those who majored in the natural sciences were less open (b = -.46 [-.85, -.06]). Those who majored in STEM fields (engineering and natural sciences) were less extraverted at Month 1 than those who only majored in non-STEM fields (b = -.71 [-1.28, -.15]), as well as less open (b = -.65 [-1.02, -.27]). There was no difference in agreeableness or conscientiousness between participants who chose different types of majors.

4.3 Selection effects: Values

Did students with certain sets of values select into certain majors? Table 3 displays the unique pattern of values that emerged for each of the majors. At Month 1, business majors ascribed more importance to power (b = .70 [.20, 1.20], achievement [b = .39 [.04, .74]),

hedonism (b = .62 [.11, 1.12]), and security (b = .46 [.01, .92]), and less importance to universalism (b = -.61 [-1.15, -.08] and benevolence (b = -.40 [-.78, -.02]), than non-business majors. Students majoring in the social sciences placed more importance on self-direction (b = .38 [.12, .65]) and universalism (b = .66 [.28, 1.03]) and less importance on conformity (b = -.46 [-.84, -.08]). Similarly, students majoring in the humanities also ascribed more importance to self-direction (b = .55 [.26, .84]) and universalism (b = .47 [.05, .88]) and less importance to conformity (b = -.51 [-.93, -.09]), and additionally found power to be less important in their lives (b = -.46 [-.85, -.06]) than non-humanities majors. Those majoring in the natural sciences also placed less importance on power (b = -.39 [-.76, -.01]) but also rated hedonism (b = -.41 [-.79, -.03]) and stimulation (b = -.42 [-.78, -.07]) as less important in their lives than those not majoring in the natural sciences. Though engineering majors did not differ from students in other majors on any specific values, STEM majors as a group (composed of natural sciences and engineering) were less interested in power (b = -.45 [-.80, -.09]), self-direction (b = -.29 [-.55, -.02]), and universalism (b = -.55 [-.93, -.18]), and more interested in tradition (b = .40 [.00, .81]) and conformity (b = .55 [.17, .92]) than non-STEM majors.

4.4 Socialization effects

Was involvement in certain majors associated with some of the individual differences in change that occurred throughout the first year of the study? Table 4 displays estimates for the slope coefficients from the latent growth models conducted with membership in each of the majors as a dummy variable. Students who majored in business became less neurotic over time (b = -.15 [-.29, -.01]). Students who majored in the social sciences also became less neurotic (b = -.12 [-.21, -.02]) and more conscientious (b = .07 [.00, .15]) over two years. Students who were STEM majors became more neurotic over two years (b = .12 [.03, .22]).

4.5 Person-environment fit

Correlations were conducted between each of the indices of person-environment fit, life and college satisfaction measures. As reported in Table 5, self-reported subjective fit was strongly related to several other measures: informant-rated subjective fit (r = .46 [.31, .59]), life satisfaction (r = .46 [.38, .54]), and college satisfaction (r = .42 [.33, .51]). Informant-rated subjective fit was related to informant-rated objective fit (r = .26 [.08, .41]) and college satisfaction (r = .27 [.10, .42]). Meanwhile, informant-rated objective fit was most strongly related to self-reported objective fit (r = .27 [.13, .40]) and life satisfaction (r = .36 [.26, .44]). Life satisfaction and college satisfaction were also strongly related (r = .43 [.34, .51]).

4.6 Person-environment fit and personality trait levels

Better fit into the university environment at Month 1, as measured by several different indices, was associated with certain personality traits. Unstandardized intercepts are presented in Table 6. All indices of fit and satisfaction were related to levels of several personality traits at Time 1. Both participants who felt like they fit in more with the university, indicating higher subjective person-environment fit, and participants who had greater satisfaction with life, were higher in extraversion, agreeableness, and conscientiousness, and lower in neuroticism at Month 1. Those whose personalities were more similar to the rest of the sample (objective fit) showed the same patterns, and were also higher in openness. Participants whose values were more similar to those of their peers were higher in extraversion, agreeableness, and openness. College satisfaction was also related to higher extraversion, agreeableness, and conscientiousness, and lower neuroticism at Month 1.

4.7 Person-environment fit and personality trait change

Better fit into the university environment at Month 1 was also associated with different patterns of change in personality over two years. Unstandardized slopes are presented in Table 6. Those who had better subjective fit at Month 1 decreased more in extraversion (b = -.03 [-.06, -.01]) and increased more in openness (b = .03 [.01, .06]), and those whose informants rated them higher in subjective fit also became more open to experience (b = .06 [.01, .11]). Students who were higher in objective fit at Month 1 became less agreeable (b = -17 [-.24, -.11]), more neurotic (b = .19 [.11, .28]), and less open (b = -.09 [-.16, -.03]). Students with higher life satisfaction at Month 1 decreased more in extraversion (b = -.03 [-.05, -.01]). Neither college satisfaction nor the degree to which students' values were similar to those of their peers was associated with individual differences in change.

Chapter 5: Discussion

The present study was intended to understand how processes of selection and socialization and the construct of person-environment fit contribute to personality development during emerging adulthood. As previous studies have found, there was ample evidence for selection processes, both in terms of personality traits and values. Meanwhile, there was only limited evidence for socialization. Furthermore, the various indices of person-environment fit were related to initial personality levels and personality change to different degrees.

Though not unexpected, perhaps the most striking pattern in the current study was the consistent relationship between initial levels of individual difference variables and major selection. These selection processes provide important details regarding the psychological profiles of the students in this major, and the types of peers that those who enter the major can expect to encounter. Business majors endorsed the values of power (conceptually consistent with their trend toward higher extraversion, consistent with prior literature), achievement, hedonism, and security, and de-emphasized values such as universalism and benevolence. Conversely, students majoring in the natural sciences focused *less* on power than their peers in other majors, and less on hedonism and stimulation, as well. Though engineering students didn't consistently rate any personal value as more or less important than their peers in other majors did, they tended to be less extraverted and less neurotic than their peers. An interest in self-direction (described as a value concerning independence, creativity, and curiosity), and universalism (emphasis on natural beauty, unity with nature, world peace) and a lack of interest in conformity (obedience, self-discipline) were particularly important for humanities and social science majors, all of which is conceptually consistent with humanities majors' high openness. Comparing STEM (engineering and natural science) to non-STEM majors offers a broader view of the stark

differences between groups of disciplines. In particular, STEM majors were less extraverted and less open, which was reflected in the relative unimportance of power (conceptually related to *social dominance* facet of extraversion), self-direction (likely related to openness), and universalism (likely related to openness), and the relative importance of tradition and conformity (conceptually negatively related to openness). Few studies have explored differences in values according to academic major, namely that social science majors have prosocial orientations compared to economics majors, social science majors are associated with lower "challenge" value orientation, and health, natural, and social science majors are higher on "self-orientation" values (focused on altruism and personal development; Balsamo, Lauriola, & Saggino, 2013; van Andel, Tyber, & Van Lange, 2016). The present results are in line with some of these findings, particularly regarding social science majors and their focus on benevolence and universalism. However, these findings extend beyond the extant literature to give more detailed illustrations of the individuals who choose each major.

These findings are especially salient given the fact that almost a third of the students in the sample were pursuing majors across more than one of the five major categories; this dispersion across multiple disciplines evidently did not mask the hetereogeneity of the academic major profiles. The fact that very high-achieving students can differ so much between majors indicates that students would be well-suited to weight the fit within their prospective major just as strongly as the fit within the schools to which they apply. Unexpectedly, none of the major categories were associated with levels of agreeableness, which is typically lower in business and natural science majors and higher in social science majors, or with conscientiousness, which is typically higher in business students and lower in humanities and social sciences students (Humburg, 2012; Vedel, 2016).

In contrast to the emergence of selection effects, there was almost no evidence for socialization effects, and those that did exist were small. This is somewhat surprising given the association between personality change and other differences in life paths (), but perhaps unsurprising given the relative salience of selection effects, and persistent difficulties with identifying specific environments associated with personality change (e.g., Jackson, Thoemmes, Jonkmann, Lüdtke, & Trautwein, 2012; van Scheppingen, Jackson, Specht, Hutteman, Denissen, & Bleidorn, 2016). Most of the differences that we see between people within certain social environments like academic major appear not to be the result of socialization processes, but rather the result of preexisting differences from selection pressures. There is talk about how power corrupts or that college leads to a more liberal world view, but based on the existing personality development evidence it seems that differences in groups are largely preexisting differences rather than any significant influence from the environment.

Despite the overwhelming selection effects, some socialization effects were found. For example, business and social sciences majors decreased in neuroticism over two years spent in the major, whereas STEM majors increased in neuroticism. It is unclear why neuroticism was the main personality trait to change differentially according to major choice. However, there are many aspects to consider when identifying the most characteristic features of any college major. For example, some majors are notoriously difficult: STEM programs include the engineering, natural sciences, and pre-med tracks, which are known for their overwhelming workload, difficult, comparatively "objective" exam methods, and demands for memorization of facts. Such demands could very well increase the stress and negative emotions that individuals experience due to these institutional pressures. The existence of different personality development trajectories as a function of major implies that the situational press for those majors are different

enough from the press of other majors to demonstrate a notable change. Students are spending time in certain classes, being taught certain topics, and spending their time on certain types of homework. Due to selection effects, they are also surrounded by like-minded individuals, having interactions with peers who may match them on personality, values, and even goals (e.g., Hill et al., 2015). Though the influence of socialization processes may be weak compared to those of selection processes, it appears that some students may indeed change as a result of their experiences within particular academic tracks.

A strength of this study was the ability to compare between different indices of fit and satisfaction, to understand not only how they may be conceptually related, but which outcomes they might each predict. Self-reported subjective fit was most strongly related to self-reported life and college satisfaction, and informant reports of subjective fit, hinting that it might be more of an overall index of adjustment at college, and one that close friends can pick up on, as well. On the other hand, the objective assessment of fit using personality was related to life satisfaction (though to a lesser degree than subjective fit), as well as informant-related objective fit, while the objective assessment of fit using values was only weakly related to the objective personality fit measure and college satisfaction.

Interestingly, different operationalizations of P-E fit were related to similar profiles of personality traits at the first wave of data collection. Individuals with higher subjective fit, objective fit, and life and college satisfaction tended to be more extraverted, agreeable, and conscientious, and less neurotic than their peers. As these are all typically evaluatively "positive" personality traits, this could be evidence for a more normative, socially desirable press, rather than a context- or major-specific one.

Perhaps less expected were the results regarding person-environment fit and personality development. Typically, person-environment fit is thought to promote adaptive personality development during emerging adulthood; however, what is adaptive in some environments may not always be adaptive in others. In this sample, students with better objective fit at the first wave of data collection became less agreeable, more neurotic, and less open over two years. Conversely, subjective fit was related to *increases* in openness, and was also related to decreases in neuroticism (as was life satisfaction). However, this change that may seem "maladaptive" in some ways is not without precedent. In fact, particular contexts have shown that specific kinds of environmental "press" can indeed influence personality in ways that may be unexpected given the overall trend of increase in agreeableness, conscientiousness, and emotional stability that tends to characterize development in emerging adulthood (Roberts, Walton, & Viechtbauer, 2006). For example, students with higher objective fit at a particularly competitive, intellectual university decreased more in neuroticism, but also decreased more in agreeableness than other students (Roberts & Robins, 2004). Given these convergent findings, it is possible that attending college makes students less agreeable over time. Higher scores over time on agreeableness items such as "tends to find fault with others" and "can be cold and aloof" and lower scores on items like "is generally trusting" may hint at the adoption of a more intellectual or even a more critical view of the world. Though critical thinking is an integral component of any liberal arts education, it is possible that for some students, this focus on questioning and doubt comes at the expense of agreement and acceptance. In addition, lower scores on items like "helpful" or "cooperative" may be at odds with the environmental press of a particularly high-achieving university, as achievement can be a relatively individualistic value that may be at odds with values of social harmony or benevolence. More prospective, longitudinal studies of college

students should be conducted in order to understand how their trajectories of personality development may differ from those who enter the workforce or pursue other endeavors after high school, as well as the longevity of these changes.

In addition, just as students may change in certain ways if they are immersed in a certain major, they may change in ways that correspond to the unique influence of their living spaces. For example, students who had better fit in a dorm which was characterized as flexible, lazy, and relaxed, not only decreased in neuroticism but also decreased in conscientiousness over four years compared to their peers in other dorms (Schultz, Harris, Harms, & Jackson, 2015). Meanwhile, students who had better fit in a dorm characterized as artistic, withdrawn, and intellectual decreased in agreeableness and extraversion over time. Person-environment fit may set the stage for adaptive personality development, but this development may actually be more adaptive within the particular context than it is for functioning in society more generally. It is possible that the press of the university for this sample was toward a less agreeable, more neurotic, and less open personality profile, and that those who were more objectively similar to their peers at the first assessment tended to respond more to these situational pressures over time. These investigations of the smaller, sub-contexts within students' broader university experience indicate that seemingly simplistic decisions like where to live and what to study may have implications for personality beyond the day-to-day surface-level implications. Indeed, similar to fitting in well with one's peers and roommates in the college setting, fitting in well with coworkers or a relationship partner may be important for outcomes down the line.

A few of the relationships between self-reported P-E fit and personality levels and change were also replicated using informant reports. However, the lack of consistent relationship between informant-rated subjective and objective fit and personality outcomes may be partially

due to the lack of shared method variance between the measures, as the personality outcomes being predicted were self-reported scores. Additionally, it is unclear why P-E fit appeared to relate to personality levels and personality development in completely different ways, as the corresponsive principle predicts that the same traits that create higher initial P-E fit would be the same ones that increase over time. Perhaps, in some cases, the fit that individuals feel upon their arrival at college or in a major is not truly predictive of their fit over time. Looking at P-E fit longitudinally could help to clarify the ways in which it can change during college. P-E fit is usually fairly stable (e.g. Wille et al., 2014), but it is important to better understand how individuals adapt to their surroundings with time.

The limitations of this study include those shared by any research on college populations, and in particular, private universities; namely, all of these students are likely above-average in terms of their IQ, education, and opportunities, though this sample is likely more racially representative than other college samples. However, the homogeneity of the population also makes future research possible. Person-environment fit is not limited to a match between the psychological variables of an individual and her peers; next steps would ideally take into account the effect that race, SES, or even religious or political beliefs can have for an individual who is immersed in the predominantly White, affluent, liberal environment that is most private universities. In addition, given the initial differences in personal values between majors, it will be necessary for future studies to include repeated assessments of values over time to understand how they might change, both during college in general and in relation to time spent in certain majors. Finally, it would be helpful to track these students with periodic assessments over a longer period of time, to see if the observed changes are permanent, and if more emerge when given more time to develop.

The relationships between personality, values, and major choice found in this study hint at a broader psychological profile that may characterize the types of people who choose to study certain topics, and post-graduation, the types of people who will hold certain types of jobs. For example, those who are on track to become CEOs of large corporations may be more concerned with power and less concerned with universalism, which may be adaptive for their bottom line but maladaptive for their company's effect on the planet. Or, perhaps those who are preparing to become social workers are more interested in self-direction, but less interested in conformity, which could affect their ability to work with others in the confines of established social service agencies. If these patterns are present even when students first begin their program of choice, it is important for career counselors, professors, and even administrators to know and to address these stark disparities between these psychological profiles. Though the skills that drive individuals to enter certain types of professions may be adaptive for success in those professions, it may be just as important to foster an awareness of blind spots that may be perpetuated by a homogeneity of values in the people teaching and taking certain types of courses. Career counselors for high schoolers and college alike should be sensitive to the reasons that students entering certain majors may have more or less fit with their peers, and alert students to what they should expect when beginning coursework in a certain discipline. College should be considered an important fulcrum both for social development and for career development. The groups with which students decide to associate themselves in efforts to carve their own niche on a large campus have real ramifications for the experience they will have and the people and commonly-held values they will encounter. Though people often select into the environments that suit them best, the personality traits and values that are respected and encouraged within specific contexts may not be the ones that are most adaptive post-graduation. Educators and educational institutions

should be sensitive to the ways in which college may funnel people into increasingly narrow and self-selected paths, which has the potential to contribute to their social and professional development in both positive and negative ways.

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Table 1
Means and variances of latent slope parameters

	Intercept M (s.e.)	**Intercept Var (s.e.)**	**Slope M (s.e.)**	**Slope Var (s.e.)**
Extraversion	8.96* (.28)	6.65* (.55)	.05 (.04)	.04* (.01)
Agreeableness	10.43* (.21)	3.53* (.32)	-.06 (.04)	.03* (.01)
Conscientiousness	10.01* (.23)	4.04* (.36)	.02 (.04)	.03* (.01)
Neuroticism	7.48* (.25)	5.07* (.46)	-.03 (.05)	.05* (.00)
Openness	10.10* (.19)	2.65* (.25)	.09* (.04)	.02* (.01)

Note: All models control for student's current year in school. * = $p < .05$

Table 2
Selection Effects: Unstandardized intercepts of personality traits by major

	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
Business (N = 52)	.79 [-.02, 1.59]	-.21 [-.82, .40]	-.13 [-.78, .52]	-.46 [-1.19, .27]	-.24 [-.77, .30]
Engineering (N = 63)	-.80* [-1.54, -.06]	.20 [-.36, .76]	-.45 [-1.06, .15]	-.79* [-1.46, -.12]	-.42 [-.91, .08]
Social Sciences (N = 163)	.49 [-.08, 1.06]	.09 [-.34, .52]	.31 [-.15, .77]	.45 [-.07, .96]	.20 [-.18, .58]
Humanities (N = 100)	-.19 [-.83, .44]	-.14 [-.62, .33]	.31 [-.20, .82]	.53 [-.04, 1.10]	.87* [.46, 1.29]
Natural Sciences (N = 124)	-.24 [-.84, .36]	.05 [-.40, .50]	.00 [-.48, .48]	.12 [-.42, .66]	-.46* [-.85, -.06]
STEM (N = 187)	-.71* [-1.28, -.15]	.09 [-.34, .52]	-.25 [-.71, .21]	-.28 [-.80, .23]	-.65* [-1.02, -.27]

Note: All models control for student's current year in school. * = $p < .05$

Table 3
Selection Effects: Unstandardized intercepts of values by major

	Total N = 380	**Business N = 52**	**Engineering N = 63**	**Social Sciences N = 163**	**Humanities N = 100**	**Natural Sciences N = 124**	**STEM N = 187**
Power	4.62 [4.28, 4.97]	.70* [.20, 1.20]	-.21 [-.68, .26]	.06 [-.30, .42]	-.46* [-.85, -.06]	-.39* [-.76, -.01]	-.45* [-.80, -.09]
Achievement	6.69 [6.45, 6.94]	.39* [.04, .74]	-.08 [-.41, .25]	-.01 [-.26, .24]	-.11 [-.38, .17]	-.07 [-.33, .19]	-.14 [-.38, .11]
Hedonism	6.25 [5.91, 6.59]	.62* [.11, 1.12]	-.02 [-.49, .46]	-.02 [-.38, .35]	-.29 [-.69, .11]	-.41* [-.79, -.03]	-.33 [-.69, .03]
Stimulation	5.62 [5.30, 5.95]	.05 [-.43, .54]	.18 [-.26, .63]	.10 [-.24, .44]	.21 [-.17, .58]	-.42* [-.78, -.07]	-.32 [-.66, .02]
Self-direction	6.65 [6.40, 6.90]	-.31 [-.68, .06]	-.18 [-.53, .17]	.38* [.12, .65]	.55* [.26, .84]	-.20 [-.48, .08]	-.29* [-.55, -.02]
Universalism	5.95 [5.60, 6.31]	-.61* [-1.15, -.08]	.47 [-.97, .02]	.66* [.28, 1.03]	.47* [.05, .88]	-.33 [-.72, .07]	-.55* [-.93, -.18]
Benevolence	7.08 [6.83, 7.33]	-.40* [-.78, -.02]	-.34 [-.68, .01]	.21 [-.06, .47]	.02 [-.28, .31]	.07 [-.21, .35]	-.14 [-.41, .13]
Tradition	5.38 [5.00, 5.77]	-.04 [-.62, .53]	.31 [-.22, .84]	-.23 [-.63, .18]	-.06 [-.51, .39]	.34 [-.09, .76]	.40* [.00, .81]
Conformity	4.79 [4.43, 5.15]	.24 [-.30, .78]	.46 [-.04, .96]	-.46* [-.84, -.08]	-.51* [-.93, -.09]	.33 [-.07, .73]	.55* [.17, .92]
Security	5.80 [5.50, 6.11]	.46* [.01, .92]	.11 [-.30, .42]	-.12 [-.45, .21]	-.32 [-.68, .04]	.10 [-.24, .45]	.18 [-.15, .51]

Note: All models control for student's current year in school. * = $p < .05$.

Table 4
Socialization Effects: Unstandardized slopes of personality by major

	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
Business (N = 52)	.00 [-.12, .12]	.07 [-.04, .19]	.01 [-.10, .13]	-.15* [-.29, -.01]	.04 [-.06, .15]
Engineering (N = 63)	-.02 [-.13, .08]	-.02 [-.12, .08]	-.08 [-.18, .02]	.12 [-.01, .24]	-.08 [-.17, .01]
Social Sciences (N = 163)	.03 [-.06, .11]	.04 [-.04, .11]	.07* [.00, .15]	-.12* [-.21, -.02]	.02 [-.05, .09]
Humanities (N = 100)	.02 [-.07, .12]	-.03 [-.11, .06]	-.08 [-.16, .01]	-.02 [-.13, .09]	.01 [-.07, .09]
Natural Sciences (N = 124)	-.02 [-.10, .06]	-.03 [-.11, .05]	-.02 [-.10, .06]	.07 [-.03, .16]	.03 [-.04, .10]
STEM (N = 187)	-.02 [-.10, .07]	-.04 [-.11, .04]	-.05 [-.12, .03]	.12* [.03, .22]	-.01 [-.07, .06]

Note: All models control for student's current year in school. * = $p < .05$.

Table 5
Zero-order correlations between fit measures

	1.	2.	3.	4.	5.	6.
1. Subjective fit						
2. Informant-rated subjective fit	.46* [.31, .59]					
3. Objective fit (personality)	.17* [.07, .27]	-.03 [-.21, .15]				
4. Informant-rated obj. fit (personality)	.02 [-.13, .17]	.24* [.06, .41]	.23* [.08, .37]			
5. Objective fit (values)	.07 [-.03, .17]	-.08 [-.25, .11]	.17* [.07, .27]	-.02 [-.17, .14]		
6. Life satisfaction	.46* [.38, .54]	.14 [-.04, .31]	.35* [.25, .44]	.10 [-.06, .25]	.08 [-.03, .18]	
7. College satisfaction	.42* [.33, .51]	.27* [.10, .42]	.15* [.04, .25]	.10 [-.10, .25]	.12* [.01, .23]	.43* [.34, .51]

Table 6
Unstandardized intercepts and slopes of personality traits associated with P-E fit

		Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
Subjective fit		.70*	.41*	.28*	-.47*	-.03
	Intercept	[.51, .88]	[.26, .56]	[.12, .44]	[-.65, -.30]	[-.16, .11]
	Slope	-.03*	.00	.01	.02	.03*
		[-.06, -.01]	[-.02, .03]	[-.02, .03]	[-.02, .05]	[.01, .06]
Inf-rated subjective fit		.48*	.07	.07	-.40*	-.19
	Intercept	[.09, .86]	[-.27, .41]	[-.30, .43]	[-.79, -.01]	[-.45, .07]
	Slope	-.01	.01	.01	-.02	.06*
		[-.07, .06]	[-.06, .07]	[-.06, .06]	[-.09, .05]	[.01, .11]
Objective fit (personality)		.68*	2.25*	.95*	-3.50*	1.36*
	Intercept	[.16, 1.19]	[1.93, 2.57]	[.54, 1.36]	[-3.82, -3.19]	[1.04, 1.68]
	Slope	-.05	-.17*	.00	.19*	-.09*
		[-.12, .03]	[-.24, -.11]	[-.07, .07]	[.11, .28]	[-.16, -.03]
Inf-rated objective fit		.39	.50	.07	-1.12*	.43*
	Intercept	[-.27, 1.04]	[-.01, 1.01]	[-.50, .63]	[-1.71, -.53]	[.00, .86]
	Slope	-.03	.03	.04	.08	-.04
		[-.14, .07]	[-.07, .13]	[-.06, .13]	[-.04, .19]	[-.12, .04]
Objective fit (values)		.73*	.87*	-.01	-.48	1.37*
	Intercept	[.04, 1.42]	[.35, 1.39]	[-.57, .56]	[-1.11, .14]	[.92, 1.82]
	Slope	-.06	-.09	.03	-.04	-.04
		[-.17, .05]	[-.19, .01]	[-.07, .13]	[-.17, .09]	[-.13, .06]
Life satisfaction		.37*	.34*	.31*	-.53*	.07
	Intercept	[.24, .51]	[.24, .44]	[.21, .42]	[-.64, -.42]	[-.03, .16]
	Slope	-.03*	-.01	.01	.01	-.01
		[-.05, -.01]	[-.03, .01]	[-.01, .03]	[-.01, .04]	[-.03, .01]
College satisfaction		1.01*	.70*	.60*	-.32	.33*
	Intercept	[.63, 1.38]	[.41, .98]	[.29, .91]	[-.68, .05]	[.06, .59]
	Slope	-.05	.04	.00	-.01	.02
		[-.10, .01]	[-.01, .10]	[-.05, .05]	[-.07, .06]	[-.03, .07]

Note: All models control for student's current year in school. * = $p < .05$.

Appendix A: Academic Majors by Category

Business
Accounting
Business
Economics and Strategy
Entrepreneurship
Finance
International Business
Marketing
Operations and Supply Chain Management (OSCM)
Organizational Behavior & Human Resources

Engineering
Applied Mathematics
Biomedical Engineering
Chemical Engineering
Computer Engineering
Computer Science
Electrical Engineering
Mechanical Engineering
Systems Engineering

Social Sciences
African and American-American Studies
American Culture Studies
Anthropology
Economics
Educational Studies
Environmental Policy
International Area Studies
Latin American Studies
Philosophy-Neuroscience-Psychology*
Political Science
Psychology
Secondary Education
Urban studies
Women, Gender, and Sexuality Studies

Humanities
Architecture
Archaeology
Art
Art History
Chinese
Comparative Arts

Communication Design
Comparative Literature
Dance
Drama
English
Film and Media Studies
French
German
History
Linguistics
Music
Philosophy
Philosophy-Neuroscience-Psychology*
Spanish

Natural Sciences
Biochemistry
Biology
Chemistry
Mathematics
Neuroscience
Philosophy-Neuroscience-Psychology*
Physics
Pre-Med