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**ADVANCED PLACEMENT STUDENTS IN COLLEGE:
AN INVESTIGATION OF COURSE GRADES AT 21 COLLEGES**

**Rick Morgan
Len Ramist**

Unpublished Statistical Report

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Advanced Placement Students in College:
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The Advanced Placement (AP) Program provides an opportunity for high school students to pursue and receive credit for college-level course work at the secondary school level. Currently, AP consists of 31 college-level courses in 19 subject areas. The Program is based on the premise that college-level material can be taught successfully to able and well-prepared secondary school students. Of the seniors in 1997 with qualifying AP grades, nearly three-quarters aspired to advanced college degrees; their high school grade average was 3.67; and for 19 of 31 AP exams, their average combined SAT score was over 1300.

AP courses are offered in every state in the United States and in 64 other countries at a total of over 11,000 schools. Nearly one million exams were given in 1997, and the grades from these exams were recognized by 3,400 universities throughout the world.

AP provides Course Descriptions and Teacher's Guides to participating schools as well as exams based on these descriptions. Each course and examination is developed by a committee composed of college faculty and AP teachers. The Program does not dictate textbooks, schedule of lessons, or teaching techniques. Students have their AP grades sent to the college they will be attending; the college then grants credit or advanced placement depending on its institutional policies.

AP Exams are offered each May at participating schools. Except for Studio Art, which consists of portfolio assessment, the exams follow a basic format that includes a multiple-choice section and a free-response section (e.g. essays, problems, programs, speaking, singing, etc.). Scores on the two sections of the exam are combined to form a composite score. The percentage that the free-response section contributes to the composite score ranges from 33% to 60%.

In June the free-response sections of the exams, as well as the portfolios in Studio Art, are scored by more than 4,000 college and AP teachers at centralized readings. Free-response section scores are combined with the scores of the multiple-choice section to form composite scores that are converted to a 5-point scale:

¹ Thanks to Kathy Lynch and Bob Smith for their comments and insights. The data would never had been collected without the support of Wade Curry, Jim Deneen, and Walt MacDonald and the tireless effort of Rosalind Day. The data would never have been analyzed without Karen Klidzia and Behroz Maneckshana.

AP Grade	Qualification
5	Extremely Well Qualified
4	Well Qualified
3	Qualified
2	Possibly Qualified
1	No Recommendation

Most colleges grant credit or advanced placement to students with grades of 3 or higher. However, some colleges require grades as high as 5 in some subjects.

Of fundamental importance to the credibility of the AP Program is that the examinations accurately identify those students who are worthy of advanced placement. If the examinations are not sufficiently reliable or are inadequate measures of the specific skills and knowledge that college courses require of students, then the validity of AP grades can be questioned. Therefore, the Program takes several steps to ensure validity.

- Curriculum Surveys: Every four to six years, AP courses and exams are updated based on results of surveys sent to hundreds of colleges and universities.
- Comparability Studies: Periodically, AP Exams, or portions of exams, are administered to college students who are completing the college course for which AP credit is sought. The performance of the college students on the AP Exams is compared with that of the AP students to confirm that the AP grading scale is properly aligned with current college standards. The AP composite score cutpoints are set so that the lowest composite score for a grade of 5 is roughly equal to the average composite score of college students earning grades of A. The lowest composite score for a grade of 4 is roughly equal to the average composite score for students with grades of B. The average composite score of students receiving grades of C is used to set the lowest AP grade of 3. Similar logic is used in setting the lowest composite score for a grade of 2.
- Longitudinal Studies: The “bottom line” for validating AP exam grades is the examination of AP students’ achievement in higher-level college courses. The question of whether AP students who are exempted from introductory college courses are as well prepared to continue in a subject area as students who took the initial course in college is crucial to the validity of the AP Program. Exempted students need to be compared, on the basis of their college grades, with students who completed the prerequisite first course in the subject area. Some results of research in this area follow:
 1. In 1967, Burham and Hewitt conducted one of the first systematic analyses of the performance of AP students in college. They studied English and mathematics

courses at Yale University and found that AP students performed better than non-AP students, and that they took more college courses in their AP subject areas than did non-AP students.

2. A study at the University of Michigan (Simms, 1982) compared the performance in upper-level courses of AP students who had been given credit for AP work with that of non-AP students. The main conclusion was that students with AP grades of 3 or better were sufficiently prepared prior to college entry to enroll directly in upper-level courses, and that they did not suffer academically as a result of advanced placement.
3. Willingham and Morris (1986) examined the college careers of more than 1,000 students at nine colleges who had participated in AP. They found that AP students were more likely to specialize in majors with tougher grading standards and to double major. Compared to classmates of similar ability, the AP students were more likely to maintain a B average and to graduate with honors. Furthermore, students who took AP had more college coursework in the subject areas of their AP Exams than did their classmates.
4. Casserly (1986) examined the performance of nearly 300 AP students at nine different colleges. After examining the course grades of all students, Casserly concluded that AP candidates who were placed out of the introductory courses did better in the first upper-level course than those students who took the introductory course.
5. Morgan and Crone (1993) examined the performance more than 3,000 AP students within the University of California system who were given advanced placement in biology, calculus, and chemistry. Although the study was limited to first-year courses, the data indicated that AP students continue to pursue knowledge in the subject area of their exam at greater rates than other students. Furthermore, for most levels of coursework, students with AP grades of at least 3 received grades in the courses into which they were placed that were higher than the non-AP students.

The purpose of the present investigation is to study further the performance of students who received advanced placement as a result of taking the AP Examinations. The study examines students in their first and second year at a sample of diverse institutions. The focus of this piece of the investigation is to compare the performance in upper-level courses of those receiving advanced placement based on their AP grades with those who took the introductory college courses, for as many exams as possible.

METHOD

Two limitations of previous AP studies have been the lack of diversity of the participating colleges and the use of only first-year grades. To respond to the first of these limitations, each of the 70 colleges that received the largest number of AP grades in 1991 were categorized based on location, selectivity, and curriculum emphasis. With these three categorizations in mind, beginning late in 1992 and continuing for almost a year, colleges were contacted about participation in a study to examine the performance in

college of students who took AP Exams. Contacts continued until a representative set of 20 of the 70 largest colleges agreed to supply course-level data. One small liberal arts college was also added to the sample. The participating colleges are listed below:

Boston College
Brigham Young University
Carnegie Mellon University
Clemson University
College of William and Mary
Cornell College (IA)
Cornell University
Duke University
Michigan State University
Pennsylvania State University
Stanford University
Tulane University
University of California-Davis
University of California-Irvine
University of Georgia
University of Illinois
University of North Carolina at Chapel Hill
University of Texas at Austin
University of Utah
University of Virginia
Yale University

The colleges were asked to supply the names, social security numbers, courses taken, course grades, gender, ethnicity, and college entrance scores for each of their students who entered in the fall of 1991. A course catalog was also requested. Data were received from the summer of 1993 through the spring of 1994. The datafiles contained first-year and second-year information; third-year information was included for a number of colleges.

The college datafiles were then matched using social security number and student name to the AP candidates files for 1990 and 1991. The merged files contained all the information supplied by colleges and AP grades. Data from 66,125 students were contained on the files; 27,268 of the records had at least one AP grade.

The course grades of AP students who received advanced placement were compared with the course grades of other students. The course catalogs and student records were used to determine the introductory-level courses for which AP grades could earn credit and for the upper-level courses into which those with sufficient AP grades could earn placement. Advanced placement ranged from the second course for many AP Exams to the fourth course for the foreign language exams.

Data for similar course levels were aggregated across colleges to produce multi-college estimates of student performance. For a course to be included in the estimate, two conditions had to be met: At least five students had to have taken a lower-level course in the subject area before taking the higher-level course. In addition, at least one student with an AP grade of 3 or higher on the relevant AP Exam must have taken the course without previously taking a lower-level course.

Estimates of course grade-point average and percentage of students with B or better grades were produced. An adjustment of one-third of a grade point was made for plus and minus grades. Grades of B- qualified as a grade of B or higher.

As was true for Morgan and Crone (1993), when comparing the performance of AP students and other students, simply using the weighted average grades and percentages proved to be inadequate. The aggregated data did not accurately reflect the pattern of differences between the groups that was apparent when examining the data from individual courses. This outcome occurred because the courses with the highest proportion of AP students were also the courses with the most stringent grading standards. Therefore, when weighting by the number of students in the group, proportionally larger weights were applied to more stringently graded courses for the AP groups than for the other students. As a result, weighted averages underestimated the differences that were apparent when examining individual course data.

Because the differential performance among groups of students was of primary importance, a method that focused on the differences in performance between AP students and other students was used. The method for estimating course grade average will be described fully by using the second-level calculus course as an example. The method to estimate the percent of A or B students, which follows the same logic, will not be described.

First, for each of the 29 qualifying second-level calculus courses at the participating colleges, the grade average for the second-level calculus course of students who also took the first calculus course was computed. Then, separately for students within each course, the difference between the course grade for each of the 3,114 AP students who received advanced placement into the second-level course and the second-level course average was found. For each AP grade, these 3,114 differences were then averaged. Using this difference procedure results in each AP student contributing equally to the estimate of the difference between AP students and other students. The averaged differences, one for each AP grade, were then added to an overall estimate of the second-level course grade average for the students who also took the first-level course. This overall estimate was obtained by weighting each of the course averages in the first step by the number of AP

students with grades of 3 or better in the course. This last procedure again results in each AP student contributing equally to the course grade estimates for AP students.

This procedure yielded estimates for course averages that would have occurred if the proportions of AP to other students were the same for each course and college. Best of all, the technique results in the aggregated estimates being consistent with the patterns of the individual course data. However, the technique may provide grade average or percentage estimates that appear inconsistent with the number of students in the course.

RESULTS

Table 1 provides comparative grade information aggregated across colleges for AP Calculus AB students who were placed into the second calculus course and for all students who took the first course in the sequence before taking the second course. The table displays the number of students and schools, the estimated average course grade, and the estimated percentage of students earning grades of A or B. The AP group includes only those students who took the second course in the calculus sequence as their first course in mathematics. The table shows how well AP students performed when placed directly into the second calculus course and allows for comparisons with all other students who took the prerequisite course.

The table indicates that the data are aggregated from 29 second-level calculus courses. Each of the 21 colleges is represented in the sample. The second calculus course represents the course where the largest number of students with AP grades of 3 or higher (N=3,114) began their coursework. The table shows that AP students with grades of 3 or higher had higher grade averages and percentages of A or B grades than the students who took the first course in the calculus sequence (AP-5: GPA=3.23 and A or B=80%; AP-4: GPA=2.79 and A or B=66%; AP-3: GPA=2.67 and A or B=60%; and all other students: GPA=2.52, A or B=54%). This finding indicates that students earning the lowest of the AP grades that AP recommends for advanced placement into the second calculus course (AP-3) can be placed directly into the second course in a calculus sequence and do as well as or better than students who take the more traditional route to the second calculus course. (The remainder of the tables for both AP Calculus AB and the other AP Exams can be found in Appendix A. They are arranged alphabetically by AP Exam title.)

Rather than describe each table in Appendix A, a summary is provided by Table 2. Shown in the table are the course levels associated with each AP Exam, the number of AP students placed into the course, number of students taking the prerequisite course before taking the higher-level course, the number of contributing courses, and a comparison of the course grade average of students earning each of the AP grades of 3 to 5 with students who took the prerequisite course. Table 2 does not include exams and courses for which fewer than 10 AP candidates were found.

In general, Table 2 indicates that AP students performed very favorably when compared to students who took the prerequisite courses. For every exam/course level combination summarized in Table 2, those receiving AP grades of 5 had higher course grade averages than the students who took the prerequisite course. In all but three cases, the grade difference was at least .30 GPA and, in the majority of the course levels, the difference was greater than .50 GPA. For half the entries in Table 2, students earning AP grades of 4 outperformed the students who took the prerequisite course by at least .25 GPA. Of the nine exam/course level combinations where the students with AP grades of 4 were outperformed, five course levels were the third or fourth course in the subject area. Those with AP grades of 3 who received advanced placement outperformed students who took the prerequisite course in 27 of the 40 exam/course level combinations. Approximately two-thirds of the differences between the two groups are less than .25 GPA. The only second sequence courses for which students with AP grades of 3 were outperformed by greater than .20 GPA by the other students were Microeconomics and Studio Art-General.

The sciences also offered multiple level of placement . Both Calculus AB and BC students performed well in the third calculus or calculus-required mathematics course. With grades of 1.15 GPA greater than other students, those with Calculus BC grades of 5 appear to be underplaced in the second calculus course. Computer Science A and AB and Physics B students performed very well when placed in the second course. However, for both Computer Science and Physics B those with AP grades less than 5 seemed more challenged when placed directly into the third course. Conversely, Physics C and Chemistry students appeared well placed into the third course in the sequence.

Appendix B contains the list of courses that were aggregated to produce each of the exam/course level combinations.

DISCUSSION

This study is the most definitive work available concerning the performance in upper-level courses of students who were granted AP credit. The course grades of students at 21 colleges who were placed out of introductory courses were compared to students who took the prerequisite introductory courses.

Based on the results of this investigation, for most AP Exams students with AP grades of 4 and 5 did extremely well in the initial coursework after being placed out of the introductory course. As expected, students with AP grades of 3 generally averaged lower course grades than did the students with AP grades of 4 or 5. However, in the majority of the courses they received average course grades better than 3.00 and more often than not earned course grade averages higher than students who took the introductory courses. This is even more impressive when one considers that the AP students were taking their first course in the department and were compared to students who have already experienced at least one course at the college in the subject area.

Several other questions very pertinent to AP need to be explored further using these data and data from further studies. Some have questioned the validity of the multiple-choice section of AP Exams and have suggested reducing the weight it contributes to the composite score. Crone and Morgan (1993) found that for seven of nine levels of calculus and chemistry coursework studied, the multiple-choice score was more highly related to college course grades than the free-response score. Bridgeman and Lewis (1994) found that for the AP United States History Exam the reverse was true. What do the data show for the other AP Exams? Some have claimed that AP serves as a “filter” discouraging students from taking college courses after they have received credit or advanced placement. Both Willingham and Morris (1986) and Morgan and Crone (1993) found that the AP seems to encourage rather than discourage students from taking advanced coursework in college in the subject area of the AP exam. Is this trend still present and is it present for all AP exams? Furthermore, what percentages of AP students major or minor in a subject related to the AP coursework?

While these and other questions need further study, the data from this study and several prior studies found that students who receive qualifying grades of 3, 4, and 5 on the AP Exams can directly enroll in upper-level courses and flourish.

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Table 1

CALCULUS AB

Placement Into Course After First Calculus Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level courses		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
11,212	29	21	All students who took a lower-level course	2.52	54	-	-
			AP students who did not take a lower-level course:				
1,078	27	19	AP5	3.23	80	+.71	+26
1,159	28	20	AP4	2.79	66	+.27	+12
877	28	21	AP3	2.67	60	+.15	+6

Table 2

Summary of Course Level Information

AP Exam	Course Level	Number of Advanced Placed AP Students	Number of Other Students	Number of Courses	Average Course Grade Comparison with All Students Who Took Lower-Level Course		
					AP 5	AP 4	AP 3
Art History	Second	30	216	11	+0.31	-0.29	-0.16
Biology	Second	666	7646	31	+0.54	+0.25	-0.05
	Third	384	2486	21	+0.36	+0.11	-0.06
Calculus AB	Second	3114	11212	29	+0.71	+0.27	+0.15
	Third	1288	9187	32	+0.42	+0.13	+0.08
Calculus BC	Second	654	10366	22	+1.15	+0.73	+0.37
	Third	1392	9090	32	+0.64	+0.14	+0.19
	Fourth	130	3962	18	+0.45	-0.13	+0.24
Chem.	Second	372	11185	20	+0.67	+0.58	+0.39
	Third	443	7603	28	+0.67	+0.29	+0.26
Comp. Sci. A	Second	238	1165	20	+0.77	+0.46	+0.21
	Third	81	577	13	+0.11	-0.08	-0.02
Comp. Sci. AB	Second	178	1126	18	+0.73	+0.83	+0.54
	Third	67	445	11	+0.32	-0.45	-0.34
Econ. Macro	Second	91	2387	21	+0.43	-0.20	+0.21
Econ. Micro	Second	74	2913	19	+0.36	+0.08	-0.31
English Lang.	Second	298	9282	30	+0.46	+0.38	+0.14
English Lit.	Second	1604	9198	29	+0.35	+0.38	+0.22
Euro. History	Second	77	671	12	+0.45	+0.05	-0.09

AP Exam	Course Level	Number of Advanced Placed AP Students	Number of Other Students	Number of Courses	Average Course Grade Comparison with All Students Who Took Lower-Level Course		
					AP 5	AP 4	AP 3
French Lang.	Third	54	1925	18	N<5	N<5	+43
	Fourth	106	1462	14	+74	+47	+37
	Fifth	134	756	19	+59	+39	+12
French Lit.	Second	19	233	8	+49	-.13	N<5
German Lang.	Third	34	675	15	N<5	N<5	+33
	Fourth	51	604	13	+58	+45	+22
	Fifth	47	291	15	+40	-.11	-.09
G & P Comp.	Second	45	418	15	+15	+03	-.09
G & P U.S.	Second	187	1503	17	+39	+44	+09
Music Theory	Second	27	261	10	+55	-.14	-.03
Physics B	Second	118	4715	22	+95	+66	+22
	Third	58	4198	17	+52	-.04	-.32
Physics C: E&M	Second	96	7390	25	+67	+39	+27
	Third	164	4198	18	+73	+15	+14
Physics C: Mech	Second	218	8056	30	+75	+15	+19
	Third	180	4534	23	+64	+32	+24
Spanish Lang.	Third	152	3960	20	N<5	+52	+50
	Fourth	246	3015	20	+35	+39	+24
	Fifth	402	1629	29	+53	+47	+21
Spanish Lit.	Second	40	309	14	+36	+08	-.11
Studio Art-Gen.	Second	15	86	5	N<5	+08	-.40
U.S. History	Second	257	1054	17	+18	+11	+14

APPENDIX A

Placement Tables

ART HISTORY

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
216	11	8	All students who took a lower-level course	3.30	89	-	-
			AP students who did not take a lower-level course:				
7	7	6	AP5	3.61	100	+.31	+11
8	5	4	AP4	3.01	83	-.29	-6
15	9	8	AP3	3.14	88	-.16	-1

BIOLOGY

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
7,646	31	17	All students who took a lower-level course	2.68	61	-	-
			AP students who did not take a lower-level course:				
207	21	11	AP5	3.22	82	+.54	+21
270	28	16	AP4	2.93	69	+.25	+8
189	28	17	AP3	2.63	57	-.05	-4

BIOLOGY

Placement Into Third Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
2,486	21	13	All students who took a lower-level course	2.87	69	-	-
			AP students who did not take a lower-level course:				
225	20	12	AP5	3.23	86	+.36	+17
123	19	12	AP4	2.98	76	+.11	+7
36	14	11	AP3	2.81	59	-.06	-10

CALCULUS AB

Placement Into Course After First Calculus Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
11,212	29	21	All students who took a lower-level course	2.52	54	-	-
			AP students who did not take a lower-level course:				
1,078	27	19	AP5	3.23	80	+.71	+26
1,159	28	20	AP4	2.79	66	+.27	+12
877	28	21	AP3	2.67	60	+.15	+6

CALCULUS AB

Placement Into Second Course After First Calculus Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
9,187	32	19	All students who took a lower-level course	2.62	58	-	-
			AP students who did not take a lower-level course:				
686	30	18	AP5	3.04	77	+.42	+19
360	26	17	AP4	2.75	63	+.13	+5
242	27	17	AP3	2.70	61	+.08	+3

CALCULUS BC

Placement Into Course After First Calculus Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
10,366	22	16	All students who took a lower-level course	2.51	54	-	-
			AP students who did not take a lower-level course:				
152	13	9	AP5	3.66	93	+1.15	+39
169	16	11	AP4	3.24	84	+.73	+30
333	22	16	AP3	2.88	69	+.37	+15
65	13	11	AP2	2.53	56	+.02	+2

CALCULUS BC

Placement Into Second Course After First Calculus Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
9,090	32	19	All students who took a lower-level course	2.74	64	-	-
			AP students who did not take a lower-level course:				
811	30	17	AP5	3.38	88	+.64	+24
302	27	17	AP4	2.88	72	+.14	+8
279	24	16	AP3	2.93	73	+.19	+9
25	12	10	AP2	2.66	63	-.08	-1

CALCULUS BC

Placement Into Third Course After First Calculus Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
3,962	18	14	All students who took a lower-level course	2.87	68	-	-
			AP students who did not take a lower-level course:				
79	14	11	AP5	3.32	80	+.45	+12
33	11	9	AP4	2.74	57	-.13	-11
18	10	9	AP3	3.11	71	+.24	+3

CHEMISTRY

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
11,185	20	15	All students who took a lower-level course	2.71	60	-	-
			AP students who did not take a lower-level course:				
101	9	9	AP5	3.38	86	+.67	+26
118	16	13	AP4	3.29	84	+.58	+24
153	16	13	AP3	3.10	82	+.39	+22

CHEMISTRY

Placement Into Third Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
7,603	28	19	All students who took a lower-level course	2.76	65	-	-
			AP students who did not take a lower-level course:				
174	23	16	AP5	3.43	88	+.67	+23
154	23	16	AP4	3.05	76	+.29	+11
115	25	18	AP3	3.02	74	+.26	+9

COMPARATIVE GOVERNMENT AND POLITICS

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
418	15	14	All students who took a lower-level course	3.13	81	-	-
			AP students who did not take a lower-level course:				
7	3	3	AP5	3.28	95	+.15	+14
22	8	7	AP4	3.16	98	+.03	+17
16	8	8	AP3	3.04	87	-.09	+6

COMPUTER SCIENCE A

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
1,165	20	17	All students who took a lower-level course	2.65	58	-	-
			AP students who did not take a lower-level course:				
132	16	14	AP5	3.42	87	+.77	+29
67	16	13	AP4	3.11	83	+.46	+25
39	17	14	AP3	2.86	64	+.21	+6

COMPUTER SCIENCE A

Placement Into Third Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
577	13	9	All students who took a lower-level course	3.11	79	-	-
			AP students who did not take a lower-level course:				
51	10	7	AP5	3.22	79	+.11	0
18	10	7	AP4	3.03	72	-.08	-7
12	8	6	AP3	3.09	81	-.02	+2

COMPUTER SCIENCE AB

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
1,126	18	15	All students who took a lower-level course	2.62	57	-	-
			AP students who did not take a lower-level course:				
75	13	12	AP5	3.35	84	+.73	+27
44	12	11	AP4	3.45	92	+.83	+35
59	13	11	AP3	3.16	84	+.54	+27
23	10	7	AP2	2.77	57	+.15	0

COMPUTER SCIENCE AB

Placement Into Third Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
445	11	7	All students who took a lower-level course	3.12	79	-	-
			AP students who did not take a lower-level course:				
38	8	5	AP5	3.44	90	+.32	+11
7	3	2	AP4	2.67	65	-.45	-14
22	9	5	AP3	2.78	68	-.34	-11

ENGLISH LANGUAGE AND COMPOSITION

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
9,282	30	15	All students who took a lower-level course	3.13	85	-	-
			AP students who did not take a lower-level course:				
56	20	11	AP5	3.59	97	+.46	+12
104	23	13	AP4	3.51	96	+.38	+11
138	27	14	AP3	3.27	89	+.14	+4

ENGLISH LITERATURE AND COMPOSITION

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
9,198	29	16	All students who took a lower-level course	3.01	80	-	-
			AP students who did not take a lower-level course:				
469	23	16	AP5	3.36	90	+.35	+10
434	23	15	AP4	3.39	94	+.38	+14
701	28	16	AP3	3.23	88	+.22	+8

EUROPEAN HISTORY

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
671	12	12	All students who took a lower-level course	2.99	79	-	-
			AP students who did not take a lower-level course:				
15	7	7	AP5	3.44	88	+.45	+9
23	9	9	AP4	3.04	84	+.05	+5
39	8	8	AP3	2.90	78	-.09	-1

FRENCH LANGUAGE

Placement Into Third Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
1,925	18	17	All students who took a lower-level course	3.06	80	-	-
			AP students who did not take a lower-level course:				
0	0	0	AP5	-	-	-	-
2	1	1	AP4	3.53	92	-.47	+12
52	12	11	AP3	3.49	93	+.43	+13
69	15	14	AP2	3.33	96	+.27	+16

FRENCH LANGUAGE

Placement Into Fourth Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
1,462	14	14	All students who took a lower-level course	3.08	85	-	-
			AP students who did not take a lower-level course:				
13	6	6	AP5	3.82	96	+.74	+11
23	9	9	AP4	3.55	100	+.47	+15
70	12	12	AP3	3.45	97	+.37	+12
55	12	12	AP2	3.33	88	+.25	+3

FRENCH LANGUAGE

Placement Into Fifth Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
756	19	16	All students who took a lower-level course	3.15	83	-	-
			AP students who did not take a lower-level course:				
25	11	9	AP5	3.74	94	+.59	+11
43	14	12	AP4	3.54	95	+.39	+12
66	17	14	AP3	3.27	89	+.12	+6
33	12	11	AP2	3.19	92	+.04	+9

FRENCH LITERATURE

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
233	8	7	All students who took a lower-level course	3.07	83	-	-
			AP students who did not take a lower-level course:				
8	4	4	AP5	3.56	99	+.49	+16
7	3	3	AP4	2.94	87	-.13	+4
4	4	4	AP3	3.07	96	.00	+13
3	3	2	AP2	2.63	69	-.44	-14

GERMAN LANGUAGE

Placement Into Third Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
675	15	15	All students who took a lower-level course	3.19	83	-	-
			AP students who did not take a lower-level course:				
2	1	1	AP5	3.83	83	+.64	0
2	2	2	AP4	3.68	84	+.49	+1
30	11	11	AP3	3.52	91	+.33	+8
21	10	10	AP2	3.23	82	+.04	-1

GERMAN LANGUAGE

Placement Into Fourth Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
604	13	13	All students who took a lower-level course	3.21	87	-	-
			AP students who did not take a lower-level course:				
10	3	3	AP5	3.79	93	+.58	+6
16	7	7	AP4	3.66	98	+.45	+11
25	12	12	AP3	3.43	100	+.22	+13

GERMAN LANGUAGE

Placement Into Fifth Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
291	15	12	All students who took a lower-level course	3.19	86	-	-
			AP students who did not take a lower-level course:				
18	8	7	AP5	3.59	92	+.40	+6
17	9	7	AP4	3.08	87	-.11	+1
12	8	6	AP3	3.10	82	-.09	-4

LATIN: LITERATURE

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
0	0	0	All students who took a lower-level course	-	-	-	-
			AP students who did not take a lower-level course:				
0	0	0	AP5	-	-	-	-
0	0	0	AP4	-	-	-	-
0	0	0	AP3	-	-	-	-
0	0	0	AP2	-	-	-	-

LATIN: LITERATURE

Placement Into Third Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
75	2	2	All students who took a lower-level course	3.31	88	-	-
			AP students who did not take a lower-level course:				
1	1	1	AP5	3.81	93	+.50	+5
0	0	0	AP4	-	-	-	-
2	2	2	AP3	4.09	-	+.78	+12

LATIN: VERGIL

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
58	2	2	All students who took a lower-level course	2.78	63	-	-
			AP students who did not take a lower-level course:				
0	0	0	AP5	-	-	-	-
1	1	1	AP4	4.23	100	+1.45	+37
0	0	0	AP3	-	-	-	-
1	1	1	AP2	3.78	95	+1.00	+32

LATIN: VERGIL

Placement Into Third Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
119	3	3	All students who took a lower-level course	3.23	85	-	-
			AP students who did not take a lower-level course:				
1	1	1	AP5	3.73	90	+.50	+5
1	1	1	AP4	3.40	90	+.17	+5
1	1	1	AP3	3.96	100	+.73	+15
3	3	3	AP2	3.97	100	+.74	+15

MACROECONOMICS

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
2,387	21	18	All students who took a lower-level course	3.04	77	-	-
			AP students who did not take a lower-level course:				
48	14	13	AP5	3.47	93	+.43	+16
35	16	15	AP4	2.84	71	-.20	-6
8	8	8	AP3	3.25	90	+.21	+13

MICROECONOMICS

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
2,913	19	16	All students who took a lower-level course	3.03	76	-	-
			AP students who did not take a lower-level course:				
39	13	12	AP5	3.39	91	+.36	+15
26	13	11	AP4	3.11	82	+.08	+6
9	8	6	AP3	2.72	73	-.31	-3

MUSIC THEORY

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
261	10	6	All students who took a lower-level course	3.34	90	-	-
			AP students who did not take a lower-level course:				
14	4	2	AP5	3.89	99	+.55	+9
8	5	3	AP4	3.20	75	-.14	-15
5	5	4	AP3	3.31	100	-.03	+10

PHYSICS B

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
4,715	22	14	All students who took a lower-level course	2.67	59	-	-
			AP students who did not take a lower-level course:				
46	10	7	AP5	3.62	98	+.95	+39
31	14	10	AP4	3.33	85	+.66	+26
41	14	12	AP3	2.89	64	+.22	+5

PHYSICS B

Placement Into Third Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
4,198	17	12	All students who took a lower-level course	2.84	65	-	-
			AP students who did not take a lower-level course:				
30	10	8	AP5	3.36	87	+.52	+22
13	7	7	AP4	2.80	61	-.04	-4
15	11	8	AP3	2.52	39	-.32	-26

PHYSICS C: ELECTRICITY AND MAGNETISM

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
7,390	25	17	All students who took a lower-level course	2.62	56	-	-
			AP students who did not take a lower-level course:				
31	11	8	AP5	3.29	81	+.67	+25
33	12	10	AP4	3.01	77	+.39	+21
32	13	10	AP3	2.89	68	+.27	+12
30	13	11	AP2	2.89	67	+.27	+11

PHYSICS C: ELECTRICITY AND MAGNETISM

Placement Into Third Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
4,198	18	11	All students who took a lower-level course	2.69	59	-	-
			AP students who did not take a lower-level course:				
101	14	9	AP5	3.42	91	+.73	+32
56	9	6	AP4	2.84	69	+.15	+10
7	5	4	AP3	2.83	64	+.14	+5

PHYSICS C: MECHANICS

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
8,056	30	18	All students who took a lower-level course	2.62	56	-	-
			AP students who did not take a lower-level course:				
84	18	12	AP5	3.37	87	+.75	+31
94	22	15	AP4	2.75	69	+.15	+13
40	18	13	AP3	2.81	65	+.19	+9
8	5	5	AP2	3.29	92	+.67	+36

PHYSICS C: MECHANICS

Placement Into Third Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
4,534	23	13	All students who took a lower-level course	2.69	59	-	-
			AP students who did not take a lower-level course:				
91	15	9	AP5	3.33	88	+.64	+29
61	15	9	AP4	3.01	74	+.32	+15
28	11	9	AP3	2.93	73	+.24	+14

SPANISH LANGUAGE

Placement Into Third Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
3,960	20	18	All students who took a lower-level course	3.15	81	-	-
			AP students who did not take a lower-level course:				
2	2	1	AP5	3.46	92	+.31	+11
7	5	4	AP4	3.67	92	+.52	+11
143	17	15	AP3	3.65	98	+.50	+17
86	20	18	AP2	3.59	98	+.44	+17

SPANISH LANGUAGE

Placement Into Fourth Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
3,015	20	17	All students who took a lower-level course	3.29	89	-	-
			AP students who did not take a lower-level course:				
37	8	7	AP5	3.64	93	+.35	+4
73	15	14	AP4	3.68	96	+.39	+7
136	17	14	AP3	3.53	98	+.24	+9
64	15	14	AP2	3.43	96	+.14	+7

SPANISH LANGUAGE

Placement Into Fifth Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
1,629	29	17	All students who took a lower-level course	3.23	87	-	-
			AP students who did not take a lower-level course:				
123	25	13	AP5	3.76	98	+.53	+11
128	23	13	AP4	3.70	97	+.47	+10
151	25	14	AP3	3.44	94	+.21	+7
18	9	8	AP2	3.27	91	+.04	+4

SPANISH LITERATURE

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
309	14	10	All students who took a lower-level course	3.26	87	-	-
			AP students who did not take a lower-level course:				
17	11	7	AP5	3.62	95	+.36	+8
13	8	6	AP4	3.34	90	+.08	+3
10	9	5	AP3	3.15	91	-.11	+4

STUDIO ART (DRAWING)

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
112	3	3	All students who took a lower-level course	3.60	97	-	-
			AP students who did not take a lower-level course:				
1	1	1	AP5	3.98	97	+.38	0
2	2	2	AP4	3.85	100	+.25	+3
0	0	0	AP3	-	-	-	-

STUDIO ART (GENERAL)

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
86	5	5	All students who took a lower-level course	3.28	88	-	-
			AP students who did not take a lower-level course:				
3	3	3	AP5	3.59	98	+.31	+10
5	3	3	AP4	3.36	98	+.08	+10
7	4	4	AP3	2.88	66	-.40	-22

U. S. GOVERNMENT AND POLITICS

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
1,503	17	16	All students who took a lower-level course	2.88	73	-	-
			AP students who did not take a lower-level course:				
60	8	8	AP5	3.27	85	+.39	+12
73	14	14	AP4	3.32	90	+.44	+17
54	13	12	AP3	2.97	79	+.09	+6

U.S. HISTORY

Placement Into Second Course

Number of Students	Number of Courses	Number of Colleges	All Colleges	Performance in the higher-level course		Comparison with all students who took a lower-level course	
				Average Grade	% A or B	Average Grade	% A or B
1,054	17	13	All students who took a lower-level course	3.03	80	-	-
			AP students who did not take a lower-level course:				
54	13	10	AP5	3.21	89	+.18	+9
108	14	10	AP4	3.14	90	+.11	+10
95	16	12	AP3	3.17	87	+.14	+7

APPENDIX B

Courses

Art History: Second Course

Brigham Young	ART 212	Survey of Western Art II
Cornell University	ARTH 265	Art from 1940 to 1990
Duke	ART 70	Introduction to the History of Art II
Penn State	ARTH 112	Survey of Western Art II
Tulane	ARTHS 102 ARTHS 356	Art Survey II Modern Art, Cezanne to the Present
UC Irvine	ARTHIS 42B	History of Asian Art
UNC	ART 36 ART 38	History of Western Art II Modern Survey
Univ. Of Virginia	ARTH 102 ARTH 253	History of Art II Formation of Twentieth Century Art

Biology: Second Course

Brigham Young	BOTNY 105 ZOOLOGY 250 ZOOLOGY 276	Plants Through the Ages Environmental Biology Human Heredity and Reproduction
Carnegie Mellon	03-240	Cell Biology
Coll. Of William & Mary	BIO 205	General Botany
Cornell Univ.	BIOS 102 BIOS 106	Biological Science II Introductory Biology II
Duke	BIO 103L BIO 151L BIO 154 BIO 160	General Microbiology Principles of Animal Physiology Principles of Neurobiology Principles of Cell Biology I
Michigan State	ZOL 341	Fundamental Genetics
Penn State	BIOL 102	Introductory Biology II
Stanford	3500320	Principles of Biology II
Tulane	CELL 205	Genetics
UC Davis	BIS 001B	Introductory Biology II
Univ. Of Georgia	BIO 104 BIO 108	Principles of Biology II General Biology II
Univ. Of Illinois	BIOL 121	Ecology and Organismic Biology
UNC	BIOL 45 BIOL 52 BIOL 54 BIOL 63 BIOL 73	Fundamentals of Human Anatomy and Physiology Cellular and Developmental Biology I Ecology and Population Biology Structure and Evolution of Vertebrates Animal Behavior
Univ. Of Texas	BIO 303	Structure and Function of Organisms
Univ. Of Utah	BIOL 201 BIOL 231 BIOL 240	Human Physiology Human Anatomy Principles of Cell Biology
Univ. Of Virginia	BIOL 102 BIOL 202	Implications of Biology Introduction to Biology II
Yale	BIOL 11122	Introduction to Biology II

Biology: Third Course

Boston College	BI 310	Bacteriology
Brigham Young	ZOOL 341 ZOOL 342 ZOOL 361	Genetic and Cell Biology I Genetic and Cell Biology II Pathophysiology
Clemson	BIOSC 303 BIOSC 304	Vertebrate Biology Biology of Plants
Coll. Of William & Mary	BIO 206	General Zoology
Cornell Univ.	BIOS 221	Neurology and Behavior I
Penn State	BIOL 222	Genetics
UC Davis	BIS 001C	Introductory Biology III
Univ. Of Georgia	BIO 320 BIO 350	Genetics Introductory Biochemistry
Univ. Of Illinois	BIOL 122	Molecular and Cellular Biology
UNC	BIOL 53	Cellular and Developmental Biology II
Univ. Of Texas	ZOO 320	Cell Biology
Univ. Of Virginia	BIOL 301 BIOL 311	Cell Biology Genetics
Yale	BIOLG 11280 BIOLG 11305 BIOLG 11320 BIOLG 11345	Biology of Reproduction Genetics Neurobiology Developmental Biology

Calculus AB: Second Course

Boston College	MT 101	Calculus II
Brigham Young	MATH 113 MATH 343	Calculus II Elementary Linear Algebra
Carnegie Mellon	21-112	Calculus II
Clemson	MTHSC 108	Calculus of One Variable II
Coll. Of William & Mary	MATH 112	Calculus II
Cornell College	MAT 142	Calculus II
Cornell Univ.	MATH 112 MATH 192	Calculus Calculus for Engineers II
Duke	MTH 32	Introduction to Calculus II
Michigan State	MTH 133	Calculus II
Penn State	MATH 111 MATH 141	Techniques of Calculus II Calculus with Analytic Geometry II
Stanford	4500420	Calculus II
Tulane	MATH 122	Calculus II
UC Davis	MAT 016B MAT 021B	Short Calculus II Calculus II
UC Irvine	MATH 2B	Calculus II
Univ. Of Georgia	MAT 254	Calculus II
Univ. Of Illinois	MATH 132 MATH 225	Calculus and Analytic Geometry II Introductory Matrix Theory
UNC	MATH 032	Calculus of Functions of One Variable II
Univ. Of Texas	M 403L M 408D	Calculus II for Business and Economics Sequences, Series, and Multivariate Calculus
Univ. Of Utah	MATH 112 MATH 212	Calculus II Calculus for AP Students II
Univ. Of Virginia	MATH 122 MATH 132	Methods of Calculus Calculus II
Yale	MATH 49115	Calculus of Functions of One Variable II

Calculus AB: Third Course

Boston College	MT 202	Multivariable Calculus I
Brigham Young	MATH 344	Calculus of Several Variables
Carnegie Mellon	21-122 21-259	Calculus with Linear Algebra Calculus in Three Dimensions
Clemson	MTHSC 206	Calculus of Several Variables
Coll. Of William & Mary	MATH 211 MATH 212 MATH 302	Linear Algebra Introduction to Multivariable Calculus Ordinary Differential Equators
Cornell Univ.	MATH 221 MATH 293	Linear Algebra and Calculus Engineering Mathematics I
Duke	MTH 103	Intermediate Calculus
Michigan State	MTH 234	Multivariate Calculus I
Penn State	MATH 220 MATH 230 MATH 231 MATH 251	Matrices Calculus and Vector Analysis Calculus of Several Variables Ordinary and Partial Differential Equations
Stanford	4500430	Calculus III
UC Davis	MAT 016C MAT 021C	Short Calculus III Calculus III
UC Irvine	MATH 2C	Infinite Series and Three-Dimensional Geometry
Univ. Of Georgia	MAT 255	Calculus III
Univ. Of Illinois	MATH 242	Calculus of Several Variables
UNC	MATH 033	Calculus of Functions of Several Variables
Univ. Of Texas	M 427K M 427L	Advanced Calculus for Applications I Advanced Calculus for Applications II
Univ. Of Utah	MATH 113 MATH 213	Calculus III Calculus for AP Students III
Univ. Of Virginia	MATH 221 MATH 225 MATH 351	Calculus III Ordinary Differential Equations with Linear Algebra Elementary Linear Algebra
Yale	MATH 49120 MATH 49222	Calculus of Functions of Several Variables Linear Algebra and Matrix Theory

Calculus BC: Second Course

Brigham Young	MATH 113 MATH 343	Calculus II Elementary Linear Algebra
Clemson	MTHSC 108	Calculus of One Variable II
Coll. Of William & Mary	MATH 112	Calculus II
Cornell Univ.	MATH 112 MATH 192	Calculus II Calculus for Engineers II
Duke	MTH 32	Introduction to Calculus II
Michigan State	MTH 32	Calculus II
Penn State	MATH 141	Calculus with Analytic Geometry II
Stanford	4500420	Calculus II
UC Davis	MAT 016B MAT 021B	Short Calculus II Calculus II
UC Irvine	MATH 2B	Calculus II
Univ. Of Georgia	MAT 254	Calculus II
Univ. Of Illinois	MATH 132 MATH 225	Calculus and Analytic Geometry II Introductory Matrix Theory
UNC	MATH 032	Calculus of Functions of One Variable II
Univ. Of Texas	M 403L M 408D	Calculus II for Business and Economics Sequences, Series, and Multivariate Calculus
Univ. Of Virginia	MATH 122 MATH 132	Methods of Calculus Calculus II
Yale	MATH 49115	Calculus of Functions of One Variable II

Calculus BC: Third Course

Boston College	MT 202	Multivariable Calculus I
Brigham Young	MATH 344	Calculus of Several Variables
Carnegie Mellon	21-122 21-259	Calculus with Linear Algebra Calculus in Three Dimensions
Clemson	MTHSC 206	Calculus of Several Variables
Coll. Of William & Mary	MATH 211 MATH 212 MATH 302	Linear Algebra Introduction to Multivariable Calculus Ordinary Differential Equations
Cornell Univ.	MATH 221 MATH 293	Linear Algebra and Calculus Engineering Mathematics I
Duke	MTH 103	Intermediate Calculus
Michigan State	MTH 234	Multivariable Calculus I
Penn State	MATH 220 MATH 230 MATH 231 MATH 251	Matrices Calculus and Vector Analysis Calculus of Several Variables Ordinary and Partial Differential Equations
Stanford	4500430	Calculus III
Tulane	MATH 221 MATH 224	Calculus III Introduction to Applied Mathematics
UC Davis	MAT 016C MAT 021C	Short Calculus III Calculus III
UC Irvine	MATH 2C	Infinite Series and Three-Dimensional Geometry
Univ. Of Illinois	MATH 242	Calculus of Several Variables
UNC	MATH 033	Calculus of Functions of Several Variables
Univ. Of Texas	M 427K M 427L	Advanced Calculus for Applications I Advanced Calculus for Applications II
Univ. Of Utah	MATH 213	Calculus for AP Students III
Univ. Of Virginia	MATH 221 MATH 225 MATH 351	Calculus III Ordinary Differential Equations with Linear Algebra Elementary Linear Algebra
Yale	MATH 49120 MATH 49222	Calculus of Functions of Several Variables Linear Algebra and Matrix Theory

Calculus BC: Fourth Course

Boston College	MT 203	Multivariable Calculus II
Carnegie Mellon	21-260 21-369	Differential Equations Numerical Methods
Clemson	MTHSC 208	Introduction to Ordinary Differential Equations
Cornell Univ.	MATH 294	Engineering Mathematics II
Duke	MTH 111	Applied Mathematical Analysis I
Michigan State	MTH 235	Multivariable Calculus II
Stanford	4500440	Calculus IV
Tulane	MATH 301 MATH 309	Probability and Statistics Linear Algebra
UC Davis	MAT 021D MAT 022A	Vector Analysis Linear Algebra
UC Irvine	MATH 2D MATH 3A	Calculus in Two and Three Dimensions I Introduction to Linear Algebra
Univ. Of Illinois	MATH 285	Differential Equations and Orthogonal Functions
UNC	MATH 083	Linear Algebra and Differential Equations
Univ. Of Utah	MATH 351	Ordinary Differential Equations for Science and Engineering
Yale	MATH 49246	Ordinary Differential Equations

Chemistry: Second Course

Brigham Young	CHEM 106 CHEM 152	General College Chemistry II Introduction to Organic Chemistry
Carnegie Mellon	09-106	Modern Chemistry II
Clemson	CH 102 CH 112	General Chemistry II General Chemistry II
Coll. Of William & Mary	CHEM 206	Organic Chemistry I
Cornell Univ.	CHEM 104 CHEM 208	Introduction to Organic and Biological Chemistry General Chemistry II
Penn State	CHEM 013	Chemical Principles II
Stanford	36900330	Structure and Relativity
Tulane	CHEM 108	General Chemistry II
UC Davis	CHE001B	General Chemistry II
UC Irvine	CHEM 1B	General Chemistry II
Univ. Of Illinois	CHEM 102 CHEM 108	General Chemistry (Biological or Physical Version) II Accelerated Chemistry II
UNC	CHEM 21	General Descriptive Chemistry II
Univ. Of Texas	CH 302	Principles of Chemistry III
Univ. Of Utah	CHEM 122	General Chemistry II
Univ. Of Virginia	CHEM 142 CHEM 152	Introduction to College Chemistry II Introduction to Chemistry for Engineers II

Chemistry: Third Course

Boston College	CH 231	Organic Chemistry
Brigham Young	CHEM 226 CHEM 351	Introduction to Analytical Chemistry Organic Chemistry I
Carnegie Mellon	09-117	Organic Chemistry I
Clemson	CH 223	Organic Chemistry
Coll. Of William & Mary	CHEM 307	Organic Chemistry II
Cornell Univ.	CHEM 253 CHEM 357	Elementary Organic Chemistry Introductory Organic Chemistry
Duke	CHM 151L	Organic Chemistry I
Michigan State	CEM 251	Organic Chemistry I
Penn State	CHEM 015 CHEM 038	Experimental Chemistry Organic Chemistry
Stanford	3600360	Chemical Separation
Tulane	CHEM 241	Organic Chemistry I
UC Davis	CHE 011C CHE 002C	General Chemistry III General Chemistry III
UC Irvine	CHEM 1C	General Chemistry III
Univ. Of Georgia	CHM 123 CHM 240	Qualitative Analysis Fundamental Organic Chemistry I
Univ. Of Illinois	CHEM 131	Elementary Organic Chemistry
UNC	CHEM 41 CHEM 61 CHEM 62	Modern Analytical Methods for Separation and Characterization Introduction to Organic Chemistry I Introduction to Organic Chemistry II
Univ. Of Texas	CH 610A	Principles of Chemistry III
Univ. Of Utah	CHEM 123	General Chemistry III
Univ. Of Virginia	CHEM 241 CHEM 261	Organic Chemistry Organic Chemistry I
Yale	CHEM 15220	Organic Chemistry

Computer Science A: Second Course

Boston College	MT 551	Computer Science II
Brigham Young	CS 152 CS 232	Discrete Structures Computer Programming
Carnegie Mellon	15-211	Fundamental Structures of Computer Science I
Coll. Of William & Mary	CSCI240	Discrete Structures of Computer Science
Coll. Of William & Mary	COMS 212	Modes of Algorithmic Expression
Duke	CPS 103	Program Design and Analysis II
Michigan State	CPS 130	Introduction to Computing
Penn State	CMPSC 120	Intermediate Programming
Stanford	230106B 230106X	Programming Abstractions Accelerated Programming Methodology and Abstractions
Tulane	CPSC 117	Software Design and Programming
UC Davis	ECS 040	Introduction to Software Development
UC Irvine	I&CSCI22	Introduction to Computer Science II
Univ. Of Illinois	CS 257 ECE 290	Numerical Methods Introduction to Computer Engineering
UNC	COMP 114	Foundations of Programming
Univ. Of Texas	CS 315	Computer Science II
Univ. Of Virginia	CS 210	Introduction to Computer Science
Yale	CPTSC 20201	Introduction to Computer Science

Computer Science A: Third Course

Clemson	CPSC 231	Computer Science III
Cornell Univ.	COMS 280 COMS 314	Discrete Structures Introduction to Digital Systems and Computer Organization
Penn State	CMPS 211	Introduction to Systems Programming
Stanford	230109A 230109B	Introduction to Computer Science I Introduction to Computer Science II
Tulane	CPSC 118	Data Structures
UC Irvine	I&CSCI 23 I&CSCI 52	Introduction to Computer Science III Systematic Software Constructs
UNC	COMP 120	Computer Organization
Univ. Of Texas	CS 336	Analysis of Programs
Yale	CPTSC 20223	Data Structures and Programming Techniques

Computer Science AB: Second Course

Brigham Young	CS 152 CS 232	Discrete Structures Computer Programming
Carnegie Mellon	15-221	Fundamental Structures of Computer Science I
Coll. Of William & Mary	CSCI 240	Discrete Structures of Computer Science
Cornell Univ.	COMS 212	Modes of Algorithmic Expression
Duke	CPS 103	Program Design and Analysis II
Michigan State	CPS 130	Introduction to Computing
Penn State	CMPSC 120	Intermediate Programming
Stanford	230106B 230106X	Programming Abstractions Accelerated Programming Methodology and Abstractions
Tulane	CPSC 117	Software Design and Programming
UC Davis	ECS 040	Introduction to Software Development
UC Irvine	I&CSI 22	Introduction to Computer Science II
Univ. Of Illinois	CS 257 ECE 290	Numerical Methods Introduction to Computer Engineering
Univ. Of Texas	CS 315	Computer Science II
Univ. Of Virginia	CS 210	Introduction to Computer Science
Yale	CPTSC 20201	Introduction to Computer Science

Computer Science AB: Third Course

Clemson	CPSC 231	Computer Science III
Cornell Univ.	COMS 280 COMS 314	Discrete Structures Introduction to Digital Structures and Computer Organization
Stanford	230109A 230109B 2301100	Introduction to Computer Science I Introduction to Computer Science II Introduction to Computer Systems and Assembly Language Programming
Tulane	CPSC 118	Data Structures
UC Irvine	I&CSCI 23 I&CSCI 52	Introduction to Computer Science III Systematic Software Constructs
UNC	COMP 120	Computer Organization
Univ. Of Texas	CS 336	Analysis of Programs

Economics, Macro: Second Course

Boston College	EC 202	Macroeconomics Theory
Carnegie Mellon	73-300	Intermediate Macroeconomics
Clemson	ECON 212	Principles of Macroeconomics
Coll. Of William & Mary	ECOH 304	Intermediate Macroeconomics Theory
Cornell Coll.	ECB 102	Microeconomics
Cornell Univ.	ECON 314	Intermediate Macroeconomics
Duke	ECO 154	Aggregate Economics
Michigan State	EC 302 EC 340	Intermediate Macroeconomics Survey of International Economics
Penn State	ECON 304	Intermediate Macroeconomics Analysis
Stanford	390051Q 3900520	Economic Analysis I Economic Analysis II
UC Davis	ECN 101	Intermediate Macro Theory
UC Irvine	ECON 20B	Basic Economic Theory II
Univ. Of Georgia	ECN 233	Economic Development in the United States
Univ. Of Illinois	ECON 301	Intermediate Macroeconomics Theory
UNC	ECON 101	Intermediate Theory: Price and Distribution
Univ. Of Texas	ECO 320L	Macroeconomics Theory
Univ. Of Virginia	ECON 302	Intermediate Macroeconomics
Yale	ECON 26116 ECON 26150	Introductory Economics II The Theory of Resource Allocation

Economics, Micro: Second Course

Boston College	EC 201	Microeconomics Theory
Carnegie Mellon	73-250	Intermediate Microeconomics
Clemson	ECON 211	Principles of Microeconomics
Coll. Of William & Mary	ECOH 303	Intermediate Microeconomics Theory
Cornell Univ.	ECON 313	Intermediate Microeconomics
Duke	ECO 149	Microeconomics Theory
Michigan State	EC 340	Survey of International Economics
Stanford	390051Q 3900520	Economic Analysis I Economic Analysis II
UC Davis	ECN 100	Intermediate Micro Theory
UC Irvine	ECON 20B ECON 20C	Basic Economic Theory II Basic Economic Theory III
Univ. Of Georgia	ECN 233	Economic Development in the United States
Univ. Of Illinois	ECON 300	Intermediate Microeconomics Theory
UNC	ECON 101	Intermediate Theory: Price and Distribution
Univ. Of Texas	ECO 320K	Microeconomics Theory
Univ. Of Virginia	ECON 301	Intermediate Microeconomics
Yale	ECON 26116 ECON 26150	Introductory Economics II The Theory of Resource Allocation

English Language: Second Course

Brigham Young	ENGL 218	Creative Writing
	ENGL 251	Fundamentals of Literary Interpretation and Criticism
	ENGL 252	Critical Writing and Research
	ENGL 291	Perspectives of English Literature I
	ENGL 311	Writing About Humanities
	ENGL 313	Expository Writing for Elementary Education Majors
	ENGL 315	Writing in Social Sciences
	ENGL 316	Technical Writing
	ENGL 324	History of the English Language
ENGL 325	Grammar and Usage	
Clemson	ENGL 102	Composition II
	ENGL 314	Technical Writing
Coll. Of William & Mary	ENG 207	Major American Writers
Penn State	ENGL 202	Effective Writing
Stanford	4000900	Fiction Writing
	401002A	Writing and Critical Thinking: Process, Structure, and Style
	401002B	Writing and Critical Thinking: Social and Contemporary Issues
	401002C	Writing and Critical Thinking: Literature and Related Topics
Tulane	ENGL 201	Introduction to British Literature
UC Davis	ENL 103A	Advanced Composition
UC Irvine	WRITING 39B	Expository Writing
	WRITING 39C	Argument and Research
Univ. Of Georgia	ENG 102	English Composition II
Univ. Of Illinois	RHET 133	Principles of Composition II
	RHET 143	Intermediate Expository Writing
UNC	ENGL 023	Introduction to Fiction
Univ. Of Texas	E 309K	Topics in Writing
Univ. Of Utah	ENGL 245	Introduction to Imaginative Writing
Univ. Of Virginia	ENWR 201	Intermediate Composition I
Yale	ENGLS 29120	Modern Prose: Advanced Writing

English Literature: Second Course

Brigham Young	CLIT 202	Arts in Western Culture II
	ENGL 202	Masterpieces of World Literature II
	ENGL 251	Fundamentals of Literary Interpretation and Criticism
	ENGL 252	Critical Writing and Research
	ENGL 291	Perspectives of English Literature I
	ENGL 292	Perspectives of English Literature II
Carnegie Mellon	76-260	Fiction
	76-265	Poetry
Clemson	ENGL 102	Composition II
	ENGL 209	Contemporary Literature
Coll. Of William & Mary	ENG 207	Major American Writers
Cornell Coll.	ENG 211	English Survey II
Cornell Univ.	ENGL 327	Shakespeare
Duke	ENG 90	Reading Critically: Poetry, Fiction, Drama
Michigan State	ENG310	Literature in English
Penn State	ENGL 202	Effective Writing
Stanford	4000900	Fiction Writing
	401002A	Writing and Critical Thinking: Process, Structure, and Style
	401002B	Writing and Critical Thinking: Social and Contemporary Issues
	401002C	Writing and Critical Thinking: Literature and Related Topics
Tulane	ENGL 201	Introduction to British Literature
UC Davis	ENL 030B	Survey of American Literature
	ENL 103A	Advanced Composition
Univ. Of Georgia	ENG 102	English Composition II
	ENG 232	Masterpieces of English Literature After 1700
Univ. Of Illinois	ENGL 209	English Literature from the Beginning to 1798
UNC	ENGL 023	Introduction to Fiction
Yale	ENGLS 29118	Introductory Seminars in Writing and Literature
	ENGLS 29129	The European Literary Tradition

European History: Second Course

Brigham Young	HIST 202	World Civilization from 1500--II
Clemson	HIST 363	History of England Since 1688
Coll. Of William & Mary	HIST 205	Survey of East Asian Civilization
Duke	HST 22D	Europe Since the Nineteenth Century
Michigan State	HST 336	Europe Since 1870
Penn State	HIST 010	Non-Western Civilization
UC Davis	HIS 146B	Europe in the Twentieth Century
UC Irvine	HISTORY 41B	Formation of European Society: 18 th and 19 th Centuries
Univ. Of Illinois	HIST 132	History of England: 1688 to Present
UNC	HIST 018	The Contemporary World in Historical Perspective: The World Since 1945
Univ. Of Texas	HIS 323L	Europe Since 1919
Yale	HISTR 202B	The History of European Civilization Since 1648

French Language: Third Course

Boston College	RL109	Intermediate French I
Brigham Young	FREN 201	Intermediate French I
Clemson	FR 201	Intermediate French I
Cornell Univ.	FRDML 123	Continuing French
Duke	FR 63	Intermediate French
Michigan State	FRN 201	Second Year French I
Penn State	FR 003	Intermediate French I
Stanford	4620030	First Year French III
Tulane	FREN 203	Intermediate French
UC Davis	FRE 003	Elementary French III
UC Irvine	FRENCH 2A	Intermediate French I
Univ. Of Georgia	FR 201	Intermediate French I
Univ. Of Illinois	FR 103	Intermediate French I
UNC	FREN 003	Intermediate French I
Univ. Of Texas	FR 312K	Second Year French I
Univ. Of Virginia	FREN 201 FREN 232	Intermediate French I Intensive Intermediate French
Yale	FREN 32130	Intermediate and Advanced French

French Language: Fourth Course

Brigham Young	FREN 202	Intermediate French II
Clemson	FR 202	Intermediate French II
Cornell Univ.	FRDML 203	Intermediate Composition and Conversation I
Duke	FR 76	Advanced Intermediate French
Michigan State	FRN 202	Second Year French II
Penn State	FR 201	Oral Communication and Reading Comprehension
Tulane	FREN 213	Intermediate French Conversation
UC Davis	FRE 021	Intermediate French I
UC Irvine	FRENCH 2B	Intermediate French II
Univ. Of Georgia	FR 202	Intermediate French II
Univ. Of Illinois	FR 104	Intermediate French II
UNC	FREN 004	Intermediate French II
Univ. Of Virginia	FREN 202	Intermediate French II
Yale	FREN 32138	Advanced Language Practice

French Language: Fifth Course

Brigham Young	FREN 301 FREN 321	Introduction to Literary Analysis French Civilization from 1589 to Present
Coll. Of William & Mary	FR 205	Upper Intermediate Grammar and Composition
Cornell Univ.	FRDML 213	Intermediate Composition and Conversation II
Duke	FR 110	Advanced Grammar and Composition
Michigan State	FRN 320	Grammar and Composition
Penn State	FR 202	Grammar and Composition
Stanford	4620230	Second Year French III
Tulane	FREN 313	Advanced French Conversation
UC Davis	FRE 022	Intermediate French II
UC Irvine	FRENCH 2C	Intermediate French III
Univ. Of Georgia	FR 301	French Conversation and Composition
Univ. Of Illinois	FR 205 FR 209	Oral French I Introduction to French Literature I
UNC	FREN 021 FREN 023	Introduction to French Literature Introduction to French Conversation
Univ. Of Texas	FR 320E	Advanced French I
Univ. Of Virginia	FREN 331	Intensive Grammar
Yale	FREN 32160	Cultural Perspectives on French Literature

French Literature: Second Course

Coll. Of William & Mary	FR 301	Introduction to French Literature
Cornell Univ.	FRLIT 222	Studies in French Literature
Duke	FR 102	Introduction to French Literature II
Tulane	FREN 325	French Civilization
UNC	FREN 021	Introduction to French Literature
	FREN 050	French Composition and Grammar Review
Univ. Of Virginia	FREN 343	Literature of the Nineteenth and Twentieth Centuries

German Language: Third Course

Boston College	GM 050	Intermediate German I
Brigham Young	GERM 201	Second Year German I
Clemson	GER 201	Intermediate German I
Coll. Of William & Mary	GER 201	Intermediate German I
Cornell Univ.	GERLA 123	Continuing German
Duke	GER 63	Intermediate German
Penn State	GER 003	Intermediate German
Stanford	4820210	Intermediate German I
Tulane	GERM 203	Intermediate German
UC Davis	GER 003	Elementary German III
UC Irvine	GERMAN 2A	Intermediate German I
Univ. Of Georgia	GER 103	Intermediate German I
Univ. Of Illinois	GER 103	Intermediate Course I
Univ. Of Virginia	GERM 201	Intermediate German I
Yale	GERMA 34130	Intermediate German

German Language: Fourth Course

Brigham Young	GERM 202	Second Year German II
Cornell Univ.	GERLA 203	Intermediate Composition and Conversation I
Duke	GER 117S	German Conversation and Composition I
Michigan State	GRM 202	Second Year German II
Penn State	GER 201	Conversation and Composition
Stanford	4820220	Intermediate German II
UC Davis	GER 004	Intermediate German
UC Irvine	GERMAN 2B	Intermediate German II
Univ. Of Illinois	GER 104	Intermediate Course II
UNC	GERM 004	Intermediate German II
Univ. Of Texas	GER 312L	Second Year German II
Univ. Of Virginia	GERM 202	Intermediate German II
Yale	GERMA 34138	Advanced German

German Language: Fifth Course

Boston College	GM 201	German Composition and Conversation I
Brigham Young	GERM 310	Conversation and Phonetics
Coll. Of William & Mary	GER 205 GER 206 GER 208	Upper Intermediate Grammar and Composition Upper-Intermediate Conversation Introduction to German Literature
Duke	GER 1185	German Conversation and Composition II
Michigan State	GRM 301	Advanced German Language and Culture
Penn State	GER 301	Intermediate Conversation and Composition
UC Davis	GER 101	Composition and Conversation
UC Irvine	GERMAN 2C	Intermediate German III
Univ. Of Illinois	GER 211	Conversation and Writing
UNC	GERM 021 GERM 031	Introduction to German Literature Conversation and Composition
Univ. Of Texas	GER 328	Advanced German Grammar
Univ. Of Virginia	GERM 300	Intensive Grammar

Government and Politics, Comparative: Second Course

Brigham Young	PLSC 202	Western Political Heritage II
Coll. Of William & Mary	GOVT 323	Introduction to International Politics
Cornell College	POL 242	International Politics
Cornell Univ.	GOVT 313	Nature, Functions, and Limits of Law
Duke	PS 117	Comparative Government and Politics: Selected Contributions
Michigan State	PLS 201	Introduction to Methods of Political Analysis
Penn State	PLSC 020	Comparative Politics: Western Europe
Stanford	580117R	Role of the Military in Politics
Tulane	POLI 250	International Relations
UC Davis	POL 003	International Relations
Univ. Of Georgia	POL 203	Introduction to Global Studies
Univ. Of Illinois	POLS 280	Introduction to International Relations
UNC	POLI 055 POLI 153	Politics of the Soviet Union and Its Successor States Constitutional Policies and the Judicial Process
Univ. Of Texas	GOV 335M	Topics in Political Thought

Government and Politics, U.S.: Second Course

Brigham Young	PLSC 310	Principles and Issues of the Founding of the American Republic
Coll. Of William & Mary	GOVT 202	Introduction to Political Philosophy
Cornell College	POL 162	American Politics
Cornell Univ.	GOVT 161	Introduction to Political Philosophy
Duke	PS 110	American Political Parties
Michigan State	PLS 321	American Constitutional Law
Penn State	PLSC 002	American Public Policy
Stanford	580101P	Politics and Public Policy
UC Davis	POL 005	Contemporary Problems of the American Political System
UC Irvine	POLSC 129	Special Topics in American Politics and Society
Univ. Of Georgia	POL 202 POL 380	Introduction to Political Science Introduction to the Legal Process
Univ. Of Illinois	POLS 280	Introduction to International Relations
UNC	POLI 062	Introduction to Political Thought: American Political Theory
Univ. Of Texas	GOV 312L	Issues and Politics in American Government
Univ. Of Virginia	GFAG 327	Public Opinion and the Political Process
Yale	POLSC 57233	Constitutional Law

Latin Literature: Third Course

Tulane

LATN 203

Introduction to Literature

Univ. Of Virginia

LATI 201

Latin Prose

Latin Vergil: Second Course

College of William & Mary	LAT 201	Introduction to Latin Prose
Univ. Of Georgia	LAT 102	Elementary Latin II

Latin Vergil: Third Course

Tulane	LATN 203	Introduction to Literature
Univ. Of Texas	LAT 311	Second Year Latin I
Univ. Of Virginia	LATI 201	Latin Prose

Music Theory: Second Course

Boston College	MU110	Harmony
Brigham Young	MUSIC 196 MUSIC 201	Music Theory II History of Civilization - Music I
Carnegie Mellon	57-152	Theory II
Stanford	5400220 5400230	Elements of Music II Elements of Music III
Tulane	MUSC 151	Harmony
Yale	MUSIC 52111 MUSIC 52210 MUSIC 52211	Introduction to the Elements of Music II Elementary Studies in Analysis and Composition I Elementary Studies in Analysis and Composition II

Physics B: Second Course

Brigham Young	PHSCS 122	Principles of Physics II
	PHSCS 221	Principles of Physics II
Carnegie Mellon	33-107	Physics for Engineering Students II
	33-122	Physics for Science Students II
Coll. Of William & Mary	PHYS 104	Physics for Non-Majors II
Cornell Univ.	PHYS 102	General Physics II
	PHYS 208	Fundamental Physics II
	PHYS 213	Physics II: Electricity and Magnetism
Duke	PHY 52L	Introductory Technical Physics II
	PHY 54L	General Physics II
Stanford	57-00530	Electricity and Magnetism
Tulane	ENGR 241	Statistics
UC Davis	PHY 005B	General Physics II
UC Irvine	PHYSICS 3B	Basic Physics II
Univ. Of Georgia	PCS 128	Introductory Physics: Thermodynamics
Univ. Of Illinois	PHYCS 102	General Physics: Light, Electricity, Magnetism, and Modern Physics
	PHYCS 107	General Physics: Heat, Electricity, and Magnetism
Univ. Of Texas	PHY 303K	Engineering Physics I
Univ. Of Virginia	PHYS 202	Principles of Physics II
Yale	PHYSC 56151	General Physics II
	PHYSC 56181	Advanced General Physics II
	PHYSC 56201	Fundamentals of Physics II

Physics B: Third Course

Brigham Young	ECEN 220	Digital State Machines
Clemson	PHYS 222 PHYS 240	Physics with Calculus III Physics of the Weather
Cornell Univ.	PHYS 214	Physics III: Optics, Waves, and Particles
Duke	PHY 143L	Optics and Modern Physics
Penn State	PHYS 203 PHYS 204 PHYS 237	General Physics III General Physics IV Introduction to Quantum Physics
Stanford	57-00550	Light and Heat
Tulane	ENGR 242	Dynamics
UC Davis	PHY 005C	General Physics III
Univ. Of Georgia	PCS 229	Modern Physics
Univ. Of Illinois	PHYCS 108 PHYCS 210	General Physics: Wave Motion, Sound, Light, and Modern Physics Introductory Relativity
UNC	PHYS 028 PHYS 061	Modern Physics Introduction to Numerical Techniques in Physics
Univ. Of Texas	PHY 303L	Engineering Physics II

Physics C, Electricity and Magnetism: Second Course

Brigham Young	PHSCS 122 PHSCS 221	Principles of Physics II Principles of Physics II
Carnegie Mellon	33-107 33-122	Physics for Engineering Students II Physics for Science Students II
Clemson	PHYS 208 PHYS 221	General Physics II Physics with Calculus II
Coll. Of William & Mary	PHYS 102	General Physics II
Cornell Univ.	PHYS 20B PHYS 213	Fundamental Physics II Physics II: Electricity and Magnetism
Duke	PHY 52L PHY 54L	Introductory Technical Physics II General Physics II
Michigan State	PHY 184	Physics II
Penn State	PHYS 202	General Physics II
Stanford	5700530	Electricity and Magnetism
Tulane	ENGR 241	Statistics
UC Davis	PHY 009B	Classical Physics II
Univ. Of Illinois	PHYCS 102 PHYCS 107	General Physics: Light, Electricity, Magnetism, and Modern Physics General Physics: Heat, Electricity, and Magnetism
UNC	PHYS 025	General Physics II
Univ. Of Texas	PHY 303K	Engineering Physics I
Univ. Of Virginia	PHYS 202	Principles of Physics II
Yale	PHYSC 56151 PHYSC 56181 PHYSC 56201	General Physics II Advanced General Physics II Fundamentals of Physics II

Physics C, Electricity and Magnetism: Third Course

Brigham Young	ECEN 220	Digital State Machines
Clemson	PHYS 222 PHYS 240	Physics with Calculus III Physics of the Weather
Coll. Of William & Mary	PHYS 201 PHYS 313	Modern Physics Introduction to Quantum Physics I
Cornell Univ.	PHYS 214	Physics III: Optics, Waves, and Particles
Duke	PHY 143L	Optics and Modern Physics
Penn State	PHYS 203 PHYS 204 PHYS 237	General Physics III General Physics IV Introduction to Quantum Physics
Stanford	5700550	Light and Heat
UC Davis	PHY 005C	General Physics III
Univ. Of Illinois	PHYCS 108 PHYCS 210	General Physics: Wave Motion, Sound, Light, and Modern Physics Introductory Relativity
UNC	PHYS 028 PHYS 061	Modern Physics Introduction to Numerical Analysis in Physics
Univ. Of Texas	PHY 303L PHY 317L	Engineering Physics II General Physics II

Physics C, Mechanics: Second Course

Brigham Young	PHSCS 106 PHSCS 122 PHSCS 221	Introductory Applied Physics II Principles of Physics II Principles of Physics II
Carnegie Mellon	33-107 33-122	Physics for Engineering Students II Physics for Science Students II
Clemson	PHYS 208 PHYS 221	General Physics II Physics with Calculus II
Coll. Of William & Mary	PHYS 102 PHYS 104	General Physics II Physics for Non-Majors II
Cornell Univ.	PHYS 102 PHYS 208 PHYS 213	General Physics II Fundamental Physics II Physics II: Electricity and Magnetism
Duke	PHY 52L PHY 54L	Introductory Technical Physics II General Physics II
Michigan State	PHY 184	Physics II
Penn State	PHYS 202 PHYS 265	General Physics II Introductory Physics II
Stanford	5700530	Electricity and Magnetism
Tulane	ENGR 241	Statics
UC Davis	PHY 009B	Classical Physics II
UC Irvine	PHYSICS 3B	Basic Physics II
Univ. Of Illinois	PHYCS 102 PHYCS 107	General Physics: Light, Electricity, Magnetism, and Modern Physics General Physics: Heat, Electricity, and Magnetism
UNC	PHYS 025	General Physics II
Univ. Of Texas	PHY 303K	Engineering Physics I
Univ. Of Utah	PHYCS 302	Physics for Scientists and Engineers: Electricity and Magnetism
Univ. Of Virginia	PHYS 202	Principles of Physics II
Yale	PHYSIC 56151 PHYSIC 56181 PHYSIC 56201	General Physics II Advanced General Physics II Fundamentals of Physics II

Physics C, Mechanics: Third Course

Brigham Young	ECEN 220	Digital State Machines
Carnegie Mellon	33-123	Physics for Science Students III
Clemson	PHYS 222 PHYS 240	Physics with Calculus III Physics of the Weather
Coll. Of William & Mary	PHYS 201 PHYS 313	Modern Physics Introduction to Quantum Physics I
Cornell Univ.	PHYS 214	Physics III: Optics, Waves, and Particles
Duke	PHY 143L PHY 181	Optics and Modern Physics Introductory Mechanics
Penn State	PHYS 203 PHYS 204 PHYS 237	General Physics III General Physics IV Introduction to Quantum Physics
Stanford	5700550	Light and Heat
UC Davis	PHY 005C	General Physics III
Univ. Of Illinois	PHYCS 108 PHYCS 210	General Physics: Wave Motion, Sound, Light, and Modern Physics Introductory Relativity
UNC	PHYS 028 PHYS 061	Modern Physics Introduction to Numerical Analysis in Physics
Univ. Of Texas	PHY 302L PHY 303L PHY 316 PHY 317L	General Physics - Technical Course: Electricity and Magnetism, Light, Atomic and Nuclear Physics Engineering Physics II Electricity and Magnetism General Physics II
Univ. Of Utah	PHYCS 303	Physics for Scientists and Engineers: Waves, Sound, and Optics

Spanish Language: Third Course

Boston College	RL 115	Intermediate Spanish I
Brigham Young	SPAN 201 SPAN 211	Second Year Spanish First Semester Conversation
Clemson	SPAN 201	Intermediate Spanish I
Coll. Of William & Mary	SPAN 201	Intermediate Spanish I
Cornell Univ.	SPAND 123	Continuing Spanish
Duke	SP 63	Intermediate Spanish
Michigan State	SPN 201	Second Year Spanish I
Penn State	SPAN 003	Intermediate Spanish
Stanford	5220030 5220110	First-Year Spanish III Second-Year Spanish I
Tulane	SPAN 203	Elements of Spanish III
UC Davis	SPA 003	Elementary Spanish III
UC Irvine	SPANISH 2A	Intermediate Spanish I
Univ. Of Georgia	SP 201	Intermediate Spanish I
Univ. Of Illinois	SPAN 123	Reading and Speaking Spanish I
UNC	SPAN 003	Intermediate Spanish I
Univ. Of Texas	SPN 312K	Second Year Spanish I
Univ. Of Virginia	SPAN 201	Intermediate Spanish
Yale	SPANS 65130	Intermediate Spanish

Spanish Language: Fourth Course

Brigham Young	SPAN 202 SPAN 212	Spanish Reading Comprehension Second Semester Conversation
Clemson	SPAN 202	Intermediaqte Spanish II
Coll. Of William & Mary	SPAN 202	Intermediate Spanish II
Cornell Univ.	SPAND 203	Intermediate Composition and Conversation I
Duke	SP 76	Advanced Intermediate Spanish
Michigan State	SPN 202	Second Year Spanish II
Penn State	SPAN 110	Intermediate Conversation
Stanford	5220120	Second Year Spanish II
Tulane	SPAN 325 SPAN 326	Advanced Composition and Grammar Conversation II
UC Davis	SPA 021	Intermediate Spanish I
UC Irvine	SPANISH 2B	Intermediate Spanish II
Univ. Of Georgia	SP 202	Intermediate Spanish II
Univ. Of Illinois	SPAN 104 SPAN 124	Intermediate Spanish II Reading and Speaking Spanish II
UNC	SPAN 004	Intermediate Spanish II
Univ. Of Texas	SPN 312L	Second Year Spanish II
Univ. Of Virginia	SPAN 202	Advanced Intermediate Spanish
Yale	SPANS 65138	Advanced Conversational Spanish

Spanish Language: Fifth Course

Boston College	RL 215	Spanish Composition, Conversation, and Readings I
Brigham Young	SPAN 302 SPAN 321 SPAN 326 SPAN 339	Advanced Spanish Grammar, Readings, and Culture Third Year Spanish Grammar and Composition Spanish Phonetics and Pronunciation Introduction to Spanish Literature
Clemson	SPAN 305	Intermediate Spanish Conversation and Composition
Coll. Of William & Mary	SPAN 205	Upper Intermediate Grammar and Composition
Cornell College	SPA 301	Composition and Conversation
Cornell Univ.	SPAND 204	Intermediate Composition and Conversation II
Duke	SP 110	Spoken Spanish
Michigan State	SPN 320	Grammar and Composition
Penn State	SPAN 200	Intensive Grammar and Composition
UC Davis	SPA 022	Intermediate Spanish II
UC Irvine	SPANISH 2C	Intermediate Spanish III
Univ. Of Georgia	SP 301	Spanish Conversation and Composition
Univ. Of Illinois	SPAN 210	Practical Review of Spanish
UNC	SPAN 021 SPAN 023	Introduction to Spanish and Spanish American Literature Conversation I
Univ. Of Texas	SPN 318 SPN 327 SPN 328 SPN 346	Conversation and Composition Advanced Grammar and Composition Spanish Civilization Practical Phonetics
Univ. Of Virginia	SPAN 301 SPAN 310 SPAN 311 SPAN 312 SPAN 313 SPAN 330	Spanish Conversation and Composition Phonetics Grammar Review Composition Advanced Conversation Literary Analysis
Yale	SPANS 65143	Advanced Spanish Grammar

Spanish Literature: Second Course

Brigham Young	SPAN 339	Introduction to Spanish Literature
Coll. Of William & Mary	SPAN 208 SPAN 301 SPAN 302 SPAN 303 SPAN 304	Fundamentals of Literary Criticism Spanish Literature from the Beginnings to 1700 Spanish Literature from 1700 to the Present Latin-American Literature of the Colonial Period Latin-American Literature from the Colonial Period to the Present
Cornell Univ.	SPANL 316	Readings in Modern Spanish Literature
Duke	SP 102	Introduction to Spanish Literature II
Michigan State	SPN 350	Introduction to Reading Hispanic Literature
Tulane	SPAH 413	Topics in Spanish American Literature
UC Irvine	SPANISH 100A	Introduction to Medieval and Golden Age Spanish Literature
UNC	SPAN 050	Advanced Grammar and Composition
Univ. Of Virginia	SPAN 422	Translation from Spanish to English
Yale	SPANS 65167	Masterpieces of Spanish American Literature II

Studio Art, Drawing: Second Course

Brigham Young	ART 220	Drawing Fundamentals
Penn State	ART 220	Figure Drawing
Univ. Of Virginia	ARTS 162	Introduction to Drawing II

Studio Art, General: Second Course

Brigham Young	DES 110	Introduction to Computer Applications
Michigan State	STA 114	Three Dimensional Forms
UC Davis	ART 003	Drawing II
UNC	ART 5	Painting I
Yale	ART 09115	Basic Drawing II

U.S. History: Second Course

Brigham Young	HIST 121	United States Since 1877
Clemson	HIST 102	History of the United States II
Cornell Univ.	HIST 314	History of American Foreign Policy
Duke	HST 92D	Development of American Democracy: 1865 to Present
	HST 111A	Early America to 1760
Michigan State	HST 306	United States History Since 1920
Penn State	HIST 160	American Naval History
Stanford	430172A	America Since 1945
Tulane	HIST 350	Civil War and Reconstruction
Univ. Of Georgia	HIS 311	America and the World
Univ. Of Illinois	HIST 255	New England, 1620-1789
	HIST 274	United States and World Crises
UNC	HIST 074	The American West, 1800 to the Present
	HIST 150	United States History Since 1945
Univ. Of Texas	HIS 315L	United States Since 1865
Univ. Of Virginia	HIUS 307	The Coming of the Civil War
	HIUS 309	Civil War and Reconstruction