CALIFORNIA STATE UNIVERSITY
CHANNEL ISLANDS

# Modeling Enrollment Growth in New and Existing Majors

## Subcommittee on Enrollment of the Task Force on Academic Planning

5.17.05

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Executive Summary

An analytical tool that was previously developed by J. E. Gonzalez in consultation with Stephen Lefevre was made available for use by the Subcommittee on Enrollment to model enrollment growth in new and existing majors. The Academic Planning Model assumes that approximately 100 student FTEs can be added each year in new majors. The model suggests that in order to meet projected enrollment targets, growth through 2010 will largely be accommodated by the expansion of its existing majors in ’05-’06. The subcommittee notes that in order for new majors to contribute to enrollment growth, they must have the long-term potential to attract large enrollments. Secondly, each new major selected will play a significant role in shaping the campus’s make-up for years to come. Output from the Academic Planning Model was combined with academic resource ratios to develop an Academic Resource Planning component to the model, which shows that the majority of additional faculty FTEs and number of instructional sections required to accommodate growth, will largely correspond to growth in existing majors.

# Modeling Enrollment Growth in New and Existing Majors

**J. E. Gonzalez, Ph.D.**
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**Subcommittee Members**
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## Background

The Academic Planning Model which had been previously developed by the authors (9.29.04) was made available for use by the Subcommittee on Enrollment of the Academic Planning Task Force. This analytical tool models enrollment growth in new and existing majors; and includes two growth scenarios for majors: weighted program growth, and proportional program growth. The model compares enrollment growth to targeted FTEs, and assumes that on an annual basis, approximately 100 student FTEs can be allocated to growth in new programs.

The addition of new majors each year has a differential impact on total enrollment. Initially, new majors add small additional enrollment to the campus base. But as majors become established, they grow and contribute to the base enrollment of all majors. However, given the specific enrollment targets that have to be reached annually through 2010, overall growth in enrollment will largely be based on the expansion of its existing majors in ’05-’06.

Existing majors need to grow at a rate that reflects a realistic estimate of how much each program can expand and the rate of growth that the campus finds appropriate for a balance among academic programs. Simply stated, the growth of existing majors, plus the introduction of new majors will provide enrollment that meets University targets.

FTEs in Existing Majors + FTEs in New Majors = Enrollment Targets

## Growing Existing and New Majors

The Academic Planning Model is based on FTEs in majors/programs. Since total University enrollment includes undergraduate students that are enrolled in a major; undergraduate students that are “undecided” as to their major; and post-baccalaureate students—the FTEs in each category are differentiated, but for brevity are simply referred to as FTEs in majors.

The base year for the planning model is ’05-’06. The campus enrollment targets that are used in the present model are based on Capital Planning Office projections. For modeling purposes, two points on the enrollment growth curve were smoothed. As shown in Exhibit 1, the annualized present year enrollment is 1,705 and it grows from 1,956 FTEs in ’05-’06 to 3,650 FTEs in ’09-’10.

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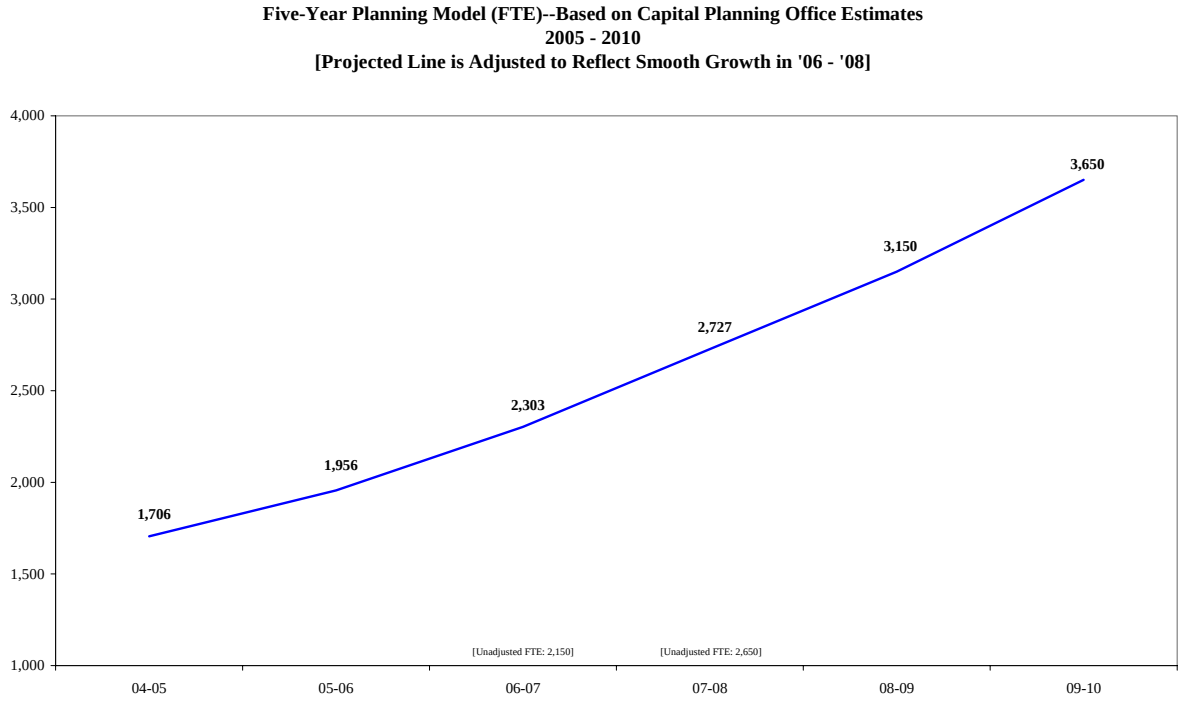
Note: The 9.29.04 enrollment model, utilized FTE enrollment projections developed by the Analytical Studies Division of the CSU Chancellor’s Office.

## Exhibit 1




## Academic Planning Model

For each year of the model, students in a major, continue to the next year, at a rate that is differentiated if they are undergraduate or post-baccalaureate students. And since this rate further accounts for students that graduate, stop-out, or continue to the next year—it is referred to as a Differentiated Continuation Rate.

Since the purpose of this analytical tool is for planning academic programs, two growth scenarios were developed. Under the weighted program growth scenario—majors are described as: small, medium, or large. The designation of size is based on known university enrollments for such majors, and projected growth is based on this relative size. Under the proportional program growth scenario—it is assumed that majors will grow only in proportion to the percent FTE that they contribute to overall enrollment.

In this first version of the model, it is assumed that the designation of the major by weight or proportion will remain constant over time. In later versions of the model, these designations can be modified to allow for differentiated growth of majors over time. Bearing in mind the known effects of the assumptions used in these two scenarios, this analytical tool is internally consistent and provides a logical model for understanding enrollment growth in academic programs.

Definition of terms used in the Academic Planning Model:

$CR$ = Differentiated continuation rate
Assumption: CR = 80% for undergraduates, 60% for Post-Baccalaureates

$S^{i}_{xx}$ = Student FTEs in majors ($i$), each year ($xx$)
Example: $S^{Math}_{'05-'06}$

$C^{i}_{xx}$ = Continuing FTEs ($i$) in majors

$W_{i}$ = Major ($i$) weights
Assumption: Small weighted at 20, medium at 30, large at 40

$P_{i}$ = Major ($i$) proportions
Assumption: Percent distribution of FTEs in majors/programs

$NG^{i}_{xx}$ = Natural growth in majors ($i$)

$GEP_{xx}$ = Growth to existing majors

$T_{xx}$ = FTE target for each year ($xx$)

100 = FTEs allocated to new majors

$PRG^{i}_{xx}$ = Major growth

Formulas:

(1) Weighted Program Growth

$$CR \cdot S^{i}_{xx} \cdot W_{i} = NG^{i}_{xx}$$

(2) Proportional Program Growth

$$CR \cdot S^{i}_{xx} \cdot P_{i} = NG^{i}_{xx}$$

$$T - \sum_{i} NG^{i}_{xx} - 100 = GEP_{xx}$$

$$W_{i} \cdot GEP_{xx} = PRG^{i}_{xx+1}$$

$$P_{i} \cdot GEP_{xx} = PRG^{i}_{xx+1}$$

**Meeting Enrollment Targets**

The Academic Planning Model produces detailed data as shown in Tables 1-5.

In Table 1, the ’05-’06 base year for the model, the annualized total FTE for ’04-’05 is 1,706 which is reflected in cell [A13, 5]. Detailed information for majors is shown in Column 5. The differentiated continuation rate as applied to AY0405 FTEs is shown in Column 6, and the sum of FTEs is reflected in cell [A13, 6].

In Column 1, each major has been assigned a relative size: small, medium, or large. Examples of size designation include: Biology-medium [A2, 1], or Math-small [A7, 1]. Column 2 shows the corresponding weights assigned to majors: such as Biology which is weighted at 30 [A2, 2], or Math which is weighted at 20 [A7, 2].

The weights assigned to each major, shown in Column 7, are applied to data in Column 6; and the results in the adjusted major growth are shown in Column 10. Similarly, proportional growth in Column 8, results in adjusted program growth shown in Column 11. Column 10 and Column 11 respectively, correspond to weighted and proportional program growth.

The sum of the natural growth of existing majors for the two growth scenarios is shown in cells [A13, 10] and [A13, 11]. When subtracted from the target FTE [A14, 10 or A14, 11], the result is overall available growth in FTEs.

In the base year, four majors will be brought on-line, and they have been designated in size and weight [A16-A19, 1-2]; and as a result of this assignment in weights, it was determined that these new majors would total 100 FTEs. FTEs from the new majors, when subtracted from the overall available growth, result in additional growth to existing majors [A21, 10] and [A21, 11], respectively for the two planning scenarios.

The additional growth to existing majors is then distributed under the two scenarios as shown in Column 12 and Column 14. The sum of the FTEs, which reflect major growth, totals the specified enrollment targets. Major growth from the base year is then carried forward to the subsequent year of the model.

Since it will be the work of the Academic Planning Task Force to recommend the academic programs that will be brought on-line in future years, the model (see Tables 2-5) assumes that 100 FTEs represent a reasonable number of FTEs to be used as a proxy for the actual FTEs that will be associated with various combinations of majors ranging in size from small to large. Without having to specify actual majors, the model accounts for growth in increments of 100 FTEs for each subsequent year through 2010.

Once the Academic Planning Task Force recommends new majors, the model can be adjusted to reflect the estimated FTEs in each of the new majors, and the specific impact of their FTEs on overall enrollment growth.

Table 1
Academic Resource Planning (FTE) Model--Majors
2005-06 through 2009-10

| [Rows, Cols] | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] | [12] | [13] | [14] | [15] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 05-06 | | 05-06 | | | |
| | 05-06 Base Year | | | | | cont rt | various wts/pcts | | | + prg growth | | + bal of stds | | | |
| | # major | wt | f04 | s05 | 04-05 | .8 / .6 | prg.wt | prg.% | csu.% | prg.wt | prg.% | prg.wt | % grw | prg.% | %grw |
| [A1] | X Undecided-Sm | 20 | 85 | 79 | 82 | 66 | 0.056 | 0.048 | | 69 | 69 | 91 | 0.315 | 86 | 0.245 |
| [A2] | 1 Biology-Med | 30 | 140 | 142 | 141 | 113 | 0.083 | 0.082 | 0.025 | 122 | 122 | 155 | 0.269 | 151 | 0.238 |
| [A3] | 2 Business-Lrg | 40 | 289 | 314 | 302 | 241 | 0.111 | 0.177 | 0.212 | 268 | 284 | 312 | 0.163 | 346 | 0.219 |
| [A4] | 3 CS-Sm | 20 | 61 | 63 | 62 | 50 | 0.056 | 0.036 | 0.027 | 52 | 51 | 74 | 0.418 | 64 | 0.248 |
| [A5] | 4 Art-Med | 30 | 109 | 118 | 113 | 91 | 0.083 | 0.066 | 0.026 | 98 | 97 | 131 | 0.334 | 120 | 0.241 |
| [A6] | 5 English-Med | 30 | 94 | 92 | 93 | 74 | 0.083 | 0.055 | 0.030 | 81 | 78 | 113 | 0.407 | 98 | 0.244 |
| [A7] | 6 Mathematics-Sm | 20 | 53 | 46 | 49 | 39 | 0.056 | 0.029 | 0.070 | 41 | 40 | 63 | 0.528 | 50 | 0.250 |
| [A8] | 7 Psychology-Lrg | 40 | 177 | 223 | 200 | 160 | 0.111 | 0.117 | 0.059 | 178 | 179 | 221 | 0.246 | 220 | 0.230 |
| [A9] | 8 History-Med | 30 | 71 | 82 | 76 | 61 | 0.083 | 0.045 | 0.018 | 66 | 64 | 99 | 0.497 | 79 | 0.246 |
| [A10] | 9 ES&RM-Sm | 20 | 36 | 36 | 36 | 29 | 0.056 | 0.021 | 0.004 | 30 | 29 | 52 | 0.724 | 37 | 0.252 |
| [A11] | 10 LS-Lrg | 40 | 383 | 406 | 394 | 315 | 0.111 | 0.231 | 0.103 | 351 | 388 | 394 | 0.125 | 470 | 0.209 |
| [A12] | 11 PBACS-Lrg | 40 | 161 | 154 | 157 | 94 | 0.111 | 0.092 | | 105 | 103 | 149 | 0.417 | 136 | 0.314 |
| [A13] | Total est. FTEs | 360 | 1656 | 1755 | 1706 | 1267 | 1.000 | 1.000 | | 1462 | 1505 | 1856 | | 1856 | |
| [A14] | Cap Pln FTE Targets | | | | | 1956 | | | | 1956 | 1956 | 1956 | | 1956 | |
| [A15] | FTE Var: Cncl - Tot | | | | | | | | | 494 | 451 | 100 | | 100 | |
| | new majors in 05-06 | | | | | | | | | | | | | | |
| [A16] | 12 sociology-lrg | 40 | | | | | | | | | | | | | |
| [A17] | 13 spanish-sm | 20 | | | | | | | | | | | | | |
| [A18] | 14 chemistry-sm | 20 | | | | | | | | | | | | | |
| [A19] | 15 economics-sm | 20 | | | | | | | | | | | | | |
| [A20] | Total est. FTEs | 100 | | | | | | | | 100 | 100 | 100 | | 100 | |
| [A21] | Avail. Overall Grwth | | | | | | | | | 394 | 351 | 0 | | 0 | |

Table 2
Academic Resource Planning (FTE) Model--Majors
2005-06 through 2009-10

| [Rows, Cols] | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] | [12] | [13] | [14] | [15] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 05-06 | | cont rt | | | | | 06-07 | | 06-07 | | | |
| | 06-07 | | + bal of stds | | .8 / .6 | | various wts/pcts | | | + prg growth | | + bal of stds | | | |
| | # major | wt | prg.wt | prg.% | prg.wt | prg.% | prg.wt | prg.% | csu.% | prg.wt | prg.% | prg.wt | % grw | prg.% | %grw |
| [B1] | X Undecided-Sm | 20 | 91 | 86 | 73 | 69 | 0.0435 | 0.044 | | 76 | 72 | 100 | 0.3166 | 92 | 0.289 |
| [B2] | 1 Biology-Med | 30 | 155 | 151 | 124 | 121 | 0.0652 | 0.077 | 0.025 | 132 | 130 | 168 | 0.2744 | 166 | 0.280 |
| [B3] | 2 Business-Lrg | 40 | 312 | 346 | 249 | 277 | 0.087 | 0.177 | 0.212 | 271 | 326 | 319 | 0.178 | 409 | 0.256 |
| [B4] | 3 CS-Sm | 20 | 74 | 64 | 59 | 51 | 0.0435 | 0.033 | 0.027 | 62 | 53 | 86 | 0.3895 | 68 | 0.292 |
| [B5] | 4 Art-Med | 30 | 131 | 120 | 105 | 96 | 0.0652 | 0.061 | 0.026 | 112 | 102 | 148 | 0.3242 | 131 | 0.284 |
| [B6] | 5 English-Med | 30 | 113 | 98 | 91 | 78 | 0.0652 | 0.050 | 0.030 | 97 | 82 | 133 | 0.3743 | 106 | 0.287 |
| [B7] | 6 Mathematics-Sm | 20 | 63 | 50 | 51 | 40 | 0.0435 | 0.026 | 0.070 | 53 | 41 | 77 | 0.4565 | 54 | 0.294 |
| [B8] | 7 Psychology-Lrg | 40 | 221 | 220 | 177 | 176 | 0.087 | 0.112 | 0.059 | 193 | 196 | 241 | 0.2506 | 249 | 0.271 |
| [B9] | 8 History-Med | 30 | 99 | 79 | 79 | 64 | 0.0652 | 0.041 | 0.018 | 84 | 66 | 121 | 0.4292 | 85 | 0.290 |
| [B10] | 9 ES&RM-Sm | 20 | 52 | 37 | 42 | 29 | 0.0435 | 0.019 | 0.004 | 44 | 30 | 68 | 0.5546 | 39 | 0.296 |
| [B11] | 10 LS-Lrg | 40 | 394 | 470 | 315 | 376 | 0.087 | 0.240 | 0.103 | 343 | 466 | 391 | 0.1407 | 579 | 0.243 |
| [B12] | 11 PBACS-Lrg | 40 | 149 | 136 | 89 | 81 | 0.087 | 0.069 | | 97 | 87 | 145 | 0.4975 | 120 | 0.376 |
| [B13] | 12 sociology-lrg | 40 | 40 | 40 | 32 | 32 | 0.087 | 0.020 | 0.028 | 35 | 33 | 83 | 1.3875 | 42 | 0.296 |
| [B14] | 13 spanish-sm | 20 | 20 | 20 | 16 | 16 | 0.0435 | 0.010 | 0.007 | 17 | 16 | 41 | 1.4453 | 21 | 0.299 |
| [B15] | 14 chemistry-sm | 20 | 20 | 20 | 16 | 16 | 0.0435 | 0.010 | 0.004 | 17 | 16 | 41 | 1.4453 | 21 | 0.299 |
| [B16] | 15 economics-sm | 20 | 20 | 20 | 16 | 16 | 0.0435 | 0.010 | 0.010 | 17 | 16 | 41 | 1.4453 | 21 | 0.299 |
| [B17] | Total est. FTEs | 460 | 1956 | 1956 | 1535 | 1538 | 1.000 | 1.000 | | 1648 | 1731 | 2203 | | 2203 | |
| [B18] | Cap Pln FTE Targets | | | | | | | | | 2303 | 2303 | 2303 | | 2303 | |
| [B19] | FTE Var: Cncl - Tot | | | | | | | | | 655 | 572 | 100 | | 100 | |
| | new majors in 06-07 | | | | | | | | | | | | | | |
| [B20] | x New FTEs in 0607 | 100 | | | | | | | | | | | | | |
| [B23] | Total est. FTEs | 100 | | | | | | | | 100 | 100 | 100 | | 100 | |
| [B24] | Avail. Overall Grwth | | | | | | | | | 555 | 472 | 0 | | 0 | |

Table 3
Academic Resource Planning (FTE) Model--Majors
2005-06 through 2009-10

| [Rows, Cols] | [1] | | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] | [12] | [13] | [14] | [15] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 06-07 | | cont rt | | | | | 07-08 | | 07-08 | | | |
| | | 07-08 | | + prg growth | | .8 / .6 | | various wts/pcts | | | + prg growth | | + bal of stds | | | |
| | # | major | wt | prg.wt | prg.% | prg.wt | prg.% | prg.wt | prg.% | csu.% | prg.wt | prg.% | prg.wt | % grw | prg.% | %grw |
| [C1] | X | Undecided-Sm | 20 | 100 | 92 | 80 | 74 | 0.0392 | 0.040 | | 83 | 77 | 111 | 0.326 | 100 | 0.301 |
| [C2] | 1 | Biology-Med | 30 | 168 | 166 | 134 | 133 | 0.0588 | 0.072 | 0.025 | 142 | 143 | 183 | 0.286 | 184 | 0.292 |
| [C3] | 2 | Business-Lrg | 40 | 319 | 409 | 256 | 327 | 0.0784 | 0.178 | 0.212 | 276 | 386 | 330 | 0.197 | 488 | 0.265 |
| [C4] | 3 | CS-Sm | 20 | 86 | 68 | 69 | 55 | 0.0392 | 0.030 | 0.027 | 72 | 56 | 99 | 0.380 | 74 | 0.304 |
| [C5] | 4 | Art-Med | 30 | 148 | 131 | 118 | 105 | 0.0588 | 0.057 | 0.026 | 125 | 111 | 166 | 0.326 | 143 | 0.296 |
| [C6] | 5 | English-Med | 30 | 133 | 106 | 106 | 84 | 0.0588 | 0.046 | 0.030 | 113 | 88 | 153 | 0.362 | 115 | 0.299 |
| [C7] | 6 | Mathematics-Sm | 20 | 77 | 54 | 62 | 43 | 0.0392 | 0.023 | 0.070 | 64 | 44 | 91 | 0.425 | 57 | 0.306 |
| [C8] | 7 | Psychology-Lrg | 40 | 241 | 249 | 193 | 199 | 0.0784 | 0.108 | 0.059 | 208 | 220 | 262 | 0.262 | 283 | 0.282 |
| [C9] | 8 | History-Med | 30 | 121 | 85 | 96 | 68 | 0.0588 | 0.037 | 0.018 | 102 | 71 | 143 | 0.399 | 92 | 0.301 |
| [C10] | 9 | ES&RM-Sm | 20 | 68 | 39 | 54 | 31 | 0.0392 | 0.017 | 0.004 | 56 | 31 | 83 | 0.483 | 41 | 0.307 |
| [C11] | 10 | LS-Lrg | 40 | 391 | 579 | 313 | 463 | 0.0784 | 0.251 | 0.103 | 337 | 580 | 392 | 0.161 | 725 | 0.250 |
| [C12] | 11 | PBACS-Lrg | 40 | 145 | 120 | 87 | 72 | 0.0784 | 0.052 | | 94 | 76 | 148 | 0.578 | 105 | 0.396 |
| [C13] | 12 | sociology-lrg | 40 | 83 | 42 | 66 | 34 | 0.0784 | 0.018 | 0.028 | 72 | 34 | 126 | 0.759 | 45 | 0.307 |
| [C14] | 13 | spanish-sm | 20 | 41 | 21 | 33 | 17 | 0.0392 | 0.009 | 0.007 | 34 | 17 | 61 | 0.801 | 22 | 0.310 |
| [C15] | 14 | chemistry-sm | 20 | 41 | 21 | 33 | 17 | 0.0392 | 0.009 | 0.004 | 34 | 17 | 61 | 0.801 | 22 | 0.310 |
| [C16] | 15 | economics-sm | 20 | 41 | 21 | 33 | 17 | 0.0392 | 0.009 | 0.010 | 34 | 17 | 61 | 0.801 | 22 | 0.310 |
| [C17] | x | New FTEs in 06-07 | 50 | 100 | 100 | 80 | 80 | 0.098 | 0.043 | | 88 | 83 | 156 | 0.773 | 108 | 0.300 |
| [C20] | | Total est. FTEs | 510 | 2303 | 2303 | 1813 | 1819 | 1.000 | 1.000 | | 1934 | 2051 | 2627 | | 2627 | |
| [C21] | | Cap Pln FTE Targets | | | | | | | | | 2727 | 2727 | 2727 | | 2727 | |
| [C22] | | FTE Var: Cncl - Tot | | | | | | | | | 793 | 676 | 100 | | 100 | |
| | | new majors in 07-08 | | | | | | | | | | | | | | |
| [C23] | xx | New FTEs in 07-08 | 100 | | | | | | | | | | | | | |
| [C27] | | Total est. FTEs | 100 | | | | | | | | 100 | 100 | 100 | | 100 | |
| [C28] | | Avail. Overall Grwth | | | | | | | | | 693 | 576 | 0 | | 0 | |

Table 4
Academic Resource Planning (FTE) Model--Majors
2005-06 through 2009-10

| [Rows, Cols] | [1] | | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] | [12] | [13] | [14] | [15] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 07-08 | | cont rt | | | | | 08-09 | | 08-09 | | | |
| | 08-09 | | | + prg growth | | .8 / .6 | | various wts/pcts | | | + prg growth | | + bal of stds | | | |
| | # | major | wt | prg.wt | prg.% | prg.wt | prg.% | prg.wt | prg.% | csu.% | prg.wt | prg.% | prg.wt | % grw | prg.% | %grw |
| [D1] | X | Undecided-Sm | 20 | 111 | 100 | 88 | 80 | 0.0357 | 0.037 | | 92 | 83 | 119 | 0.299 | 105 | 0.267 |
| [D2] | 1 | Biology-Med | 30 | 183 | 184 | 147 | 147 | 0.0536 | 0.068 | 0.025 | 154 | 157 | 195 | 0.266 | 198 | 0.259 |
| [D3] | 2 | Business-Lrg | 40 | 330 | 488 | 264 | 390 | 0.0714 | 0.179 | 0.212 | 283 | 460 | 338 | 0.193 | 568 | 0.235 |
| [D4] | 3 | CS-Sm | 20 | 99 | 74 | 79 | 59 | 0.0357 | 0.027 | 0.027 | 82 | 60 | 109 | 0.334 | 77 | 0.270 |
| [D5] | 4 | Art-Med | 30 | 166 | 143 | 133 | 115 | 0.0536 | 0.053 | 0.026 | 140 | 121 | 181 | 0.293 | 152 | 0.263 |
| [D6] | 5 | English-Med | 30 | 153 | 115 | 123 | 92 | 0.0536 | 0.042 | 0.030 | 129 | 96 | 170 | 0.318 | 121 | 0.266 |
| [D7] | 6 | Mathematics-Sm | 20 | 91 | 57 | 73 | 46 | 0.0357 | 0.021 | 0.070 | 76 | 47 | 103 | 0.362 | 59 | 0.271 |
| [D8] | 7 | Psychology-Lrg | 40 | 262 | 283 | 210 | 226 | 0.0714 | 0.104 | 0.059 | 225 | 249 | 279 | 0.244 | 312 | 0.251 |
| [D9] | 8 | History-Med | 30 | 143 | 92 | 114 | 74 | 0.0536 | 0.034 | 0.018 | 120 | 76 | 161 | 0.341 | 97 | 0.268 |
| [D10] | 9 | ES&RM-Sm | 20 | 83 | 41 | 67 | 33 | 0.0357 | 0.015 | 0.004 | 69 | 33 | 96 | 0.396 | 43 | 0.273 |
| [D11] | 10 | LS-Lrg | 40 | 392 | 725 | 313 | 580 | 0.0714 | 0.266 | 0.103 | 336 | 734 | 391 | 0.163 | 894 | 0.219 |
| [D12] | 11 | PBACS-Lrg | 40 | 148 | 105 | 89 | 63 | 0.0714 | 0.039 | | 95 | 66 | 150 | 0.574 | 89 | 0.355 |
| [D13] | 12 | sociology-lrg | 40 | 126 | 45 | 101 | 36 | 0.0714 | 0.017 | 0.028 | 108 | 37 | 163 | 0.507 | 47 | 0.272 |
| [D14] | 13 | spanish-sm | 20 | 61 | 22 | 49 | 18 | 0.0357 | 0.008 | 0.007 | 51 | 18 | 78 | 0.540 | 23 | 0.275 |
| [D15] | 14 | chemistry-sm | 20 | 61 | 22 | 49 | 18 | 0.0357 | 0.008 | 0.004 | 51 | 18 | 78 | 0.540 | 23 | 0.275 |
| [D16] | 15 | economics-sm | 20 | 61 | 22 | 49 | 18 | 0.0357 | 0.008 | 0.010 | 51 | 18 | 78 | 0.540 | 23 | 0.275 |
| [D17] | x | New FTEs in 06-07 | 50 | 156 | 108 | 125 | 87 | 0.0893 | 0.040 | | 136 | 90 | 204 | 0.504 | 114 | 0.266 |
| [D18] | xx | New FTEs in 07-08 | 50 | 100 | 100 | 80 | 80 | 0.0893 | 0.037 | 0.018 | 87 | 83 | 156 | 0.785 | 105 | 0.267 |
| [D24] | | Total est. FTEs | 560 | 2727 | 2727 | 2152 | 2161 | 1.000 | 1.000 | | 2284 | 2446 | 3050 | | 3050 | |
| [D25] | | Cap Pln FTE Targets | | | | | | | | | 3150 | 3150 | 3150 | | 3150 | |
| [D26] | | FTE Var: Cncl - Tot | | | | | | | | | 866 | 704 | 100 | | 100 | |
| | | new majors in 08-09 scenario 1=100 ftes | | | | | | | | | | | | | | |
| [D27] | xxx | New FTEs in 08-09 | 100 | | | | | | | | | | | | | |
| [D30] | | Total est. FTEs | 100 | | | | | | | | 100 | 100 | 100 | | 100 | |
| [D31] | | Avail. Overall Grwth | | | | | | | | | 766 | 604 | 0 | | 0 | |

Table 5
Academic Resource Planning (FTE) Model--Majors
2005-06 through 2009-10

| [Rows, Cols] | [1] | | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] | [12] | [13] | [14] | [15] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 08-09 | | cont rt | | | | | 09-10 | | 09-10 | | | |
| | 09-10 | | | + prg growth | | .8 / .6 | | various wts/pcts | | | + prg growth | | + bal of stds | | | |
| | # | major | wt | prg.wt | prg.% | prg.wt | prg.% | prg.wt | prg.% | csu.% | prg.wt | prg.% | prg.wt | % grw | prg.% | %grw |
| [E1] | X | Undecided-Sm | 20 | 119 | 105 | 95 | 84 | 0.0328 | 0.033 | | 98 | 87 | 128 | 0.306 | 110 | 0.268 |
| [E2] | 1 | Biology-Med | 30 | 195 | 198 | 156 | 159 | 0.0492 | 0.063 | 0.025 | 164 | 169 | 209 | 0.275 | 213 | 0.261 |
| [E3] | 2 | Business-Lrg | 40 | 338 | 568 | 270 | 455 | 0.0656 | 0.180 | 0.212 | 288 | 537 | 348 | 0.209 | 663 | 0.235 |
| [E4] | 3 | CS-Sm | 20 | 109 | 77 | 87 | 61 | 0.0328 | 0.024 | 0.027 | 90 | 63 | 120 | 0.334 | 80 | 0.271 |
| [E5] | 4 | Art-Med | 30 | 181 | 152 | 145 | 122 | 0.0492 | 0.048 | 0.026 | 152 | 128 | 197 | 0.297 | 162 | 0.265 |
| [E6] | 5 | English-Med | 30 | 170 | 121 | 136 | 97 | 0.0492 | 0.038 | 0.030 | 143 | 101 | 188 | 0.316 | 127 | 0.267 |
| [E7] | 6 | Mathematics-Sm | 20 | 103 | 59 | 82 | 48 | 0.0328 | 0.019 | 0.070 | 85 | 48 | 115 | 0.354 | 62 | 0.272 |
| [E8] | 7 | Psychology-Lrg | 40 | 279 | 312 | 224 | 250 | 0.0656 | 0.099 | 0.059 | 238 | 274 | 298 | 0.253 | 344 | 0.252 |
| [E9] | 8 | History-Med | 30 | 161 | 97 | 129 | 77 | 0.0492 | 0.031 | 0.018 | 136 | 80 | 181 | 0.333 | 101 | 0.269 |
| [E10] | 9 | ES&RM-Sm | 20 | 96 | 43 | 77 | 34 | 0.0328 | 0.013 | 0.004 | 80 | 34 | 110 | 0.378 | 44 | 0.274 |
| [E11] | 10 | LS-Lrg | 40 | 391 | 894 | 312 | 715 | 0.0656 | 0.284 | 0.103 | 333 | 919 | 393 | 0.181 | 1117 | 0.216 |
| [E12] | 11 | PBACS-Lrg | 40 | 150 | 89 | 90 | 53 | 0.0656 | 0.028 | | 96 | 55 | 156 | 0.627 | 75 | 0.360 |
| [E13] | 12 | sociology-lrg | 40 | 163 | 47 | 130 | 37 | 0.0656 | 0.015 | 0.028 | 139 | 38 | 199 | 0.434 | 48 | 0.273 |
| [E14] | 13 | spanish-sm | 20 | 78 | 23 | 62 | 18 | 0.0328 | 0.007 | 0.007 | 64 | 18 | 95 | 0.467 | 23 | 0.275 |
| [E15] | 14 | chemistry-sm | 20 | 78 | 23 | 62 | 18 | 0.0328 | 0.007 | 0.004 | 64 | 18 | 95 | 0.467 | 23 | 0.275 |
| [E16] | 15 | economics-sm | 20 | 78 | 23 | 62 | 18 | 0.0328 | 0.007 | 0.010 | 64 | 18 | 95 | 0.467 | 23 | 0.275 |
| [E17] | x | New FTEs in 06-07 | 50 | 204 | 114 | 163 | 91 | 0.082 | 0.036 | | 177 | 95 | 252 | 0.426 | 120 | 0.268 |
| [E18] | xx | New FTEs in 07-08 | 50 | 156 | 105 | 124 | 84 | 0.082 | 0.033 | 0.018 | 135 | 87 | 210 | 0.559 | 110 | 0.268 |
| [E19] | xxx | New FTEs in 08-09 | 50 | 100 | 100 | 80 | 80 | 0.082 | 0.032 | 0.006 | 87 | 83 | 162 | 0.869 | 105 | 0.269 |
| | | | 610 | 3150 | 3150 | 2490 | 2502 | 1.000 | 1.000 | | 2632 | 2851 | 3550 | | 3550 | |
| | | | | | | | | | | | 3650 | 3650 | 3650 | | 3650 | |
| | | new majors in 08-09 scenario 1=100 ftes | | | | | | | | | 1018 | 799 | 100 | | 100 | |
| [E27] | xxxx | New FTEs in 09-10 | 100 | | | | | | | | | | | | | |
| [E31] | | Total est. FTEs | 100 | | | | | | | | 100 | 100 | 100 | | 100 | |
| [E32] | | Avail. Overall Grwth | | | | | | | | | 918 | 699 | 0 | | 0 | |

## Lessons from Modeling Enrollment Growth

A few of the general conclusions that follow from the enrollment analysis are:

- The majority of campus enrollment growth through 2010 will come through the ***expansion of its existing ten majors and to a lesser extent from growth in majors begun in 2005 and 2006.*** Majors begun after that time likely will not have the opportunity to contribute significantly to growth over the medium term.

- In selecting among available new majors, the University must recognize that majors which have ***the potential to attract large number of students will greatly assist it in achieving the ambitious targets set for the campus*** over the next years. Not only do large major start from a larger base, they also add students at a faster rate in out years.

- By the same token, ***small majors contribute less significantly to campus enrollment*** growth, and thus require that the campus instead find enrollment among existing majors.

- Major that the campus identifies over next three or four years will ***play a significant role*** in shaping the campus's make-up for years to come. These new majors will have high expectations of enrollment growth and therefore will have an important presence among University degrees.

## Future Action

The Task Force on Academic Planning will be identifying new majors to be implemented over the next eight to ten years.

The Subcommittee recommends that as the new majors are identified as part of the academic plan, the enrollment criteria included in this report be included in its thinking.

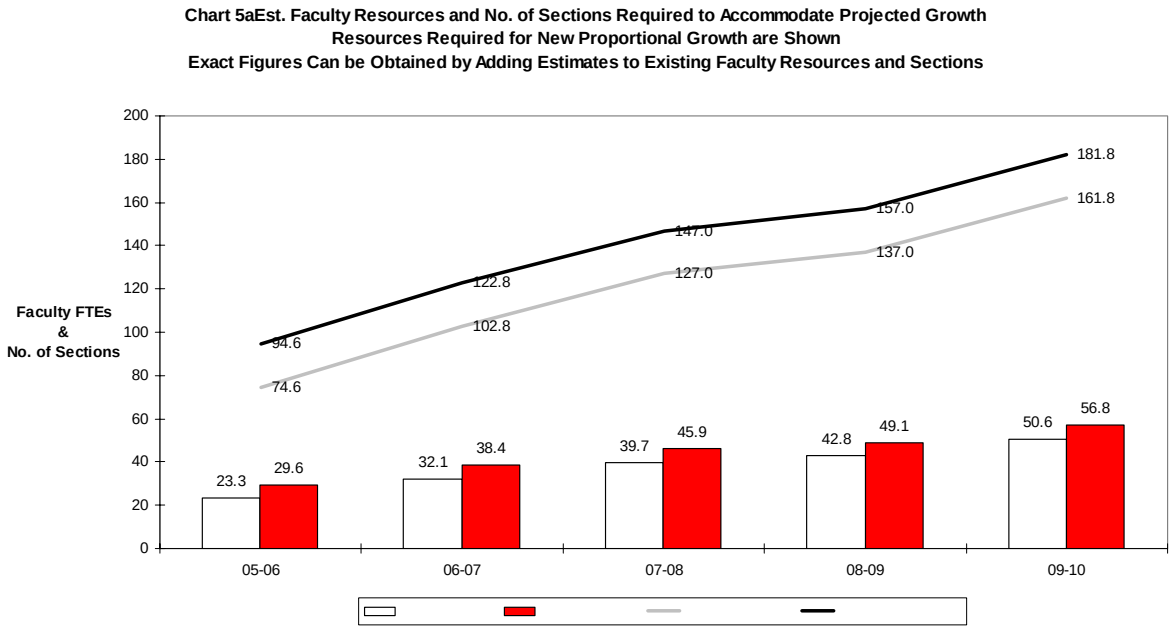
The Subcommittee recommends that each new major on the academic plan be integrated into the enrollment model to determine its effect on overall University student growth.

## Academic Resources to Support Projected Enrollment

In a previous study of academic resources that was conducted by the authors, it was found that 100 student FTEs require 6.25 faculty members (FTEF) to provide instruction. Also, 100 student FTEs require that 20 instructional sections be provided.

Taking the output from the Academic Planning Model that relates to growth either to existing majors or to new majors, and applying the faculty and instructional sections ratios, results in the following projected resource requirements.

Exhibit 2




The red bar represents the total additional faculty that will be required to provide instruction to accommodate total enrollment growth. The white bar represents additional faculty required to accommodate growth in existing majors. The difference between the two values corresponds to FTEFs associated with 100 student FTEs in new majors.

Similarly, the black line represents the total additional instructional sections that will be required to accommodate total enrollment growth. The gray line represents additional instructional sections to accommodate growth in existing majors. The difference between the two values corresponds to instructional sections associated with 100 student FTEs in new majors.

The Academic Resource Planning component of the Academic Planning Model shows that the majority of additional FTEFs and instructional sections required to accommodate growth, largely corresponds to growth in existing majors.