Prepared by:
Keith Wurtz

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Prerequisite Validation Study

Examination of English as a Prerequisite to Anthropology, Art, Philosophy, and Speech Courses

Prepared by Keith Wurtz
Office of Institutional Effectiveness, Research & Planning
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Executive Summary

ANTHRO-102

- ENGL-015 and 101 both meet the prerequisite criteria for ANTHRO-102

ENGL-015 as a Possible Prerequisite for ANTHRO-102

- The current ANTHRO-102 success rate is **71%** and the data indicate that the proposed prerequisite may increase the ANTHRO-102 success rate to **82%**
- **58%** of the ANTHRO-102 students examined met the ENGL-015 prerequisite
- Students who successfully completed ENGL-015 and/or placed into ENGL-101 prior to taking ANTHRO-102 had a statistically significantly ($p < .001$) and substantially ($ES = .58$) higher ANTHRO-102 success rate (**82%**) than students who had not met the proposed prerequisite (**56%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

ENGL-101 as a Possible Prerequisite for ANTHRO-102

- The current ANTHRO-102 success rate is **71%** and the data indicate that the proposed prerequisite may increase the ANTHRO-102 success rate to **84%**
- **44%** of the ANTHRO-102 students examined met the ENGL-101 prerequisite
- Students who successfully completed ENGL-101 prior to taking ANTHRO-102 had a statistically significantly ($p < .001$) and substantially ($ES = .54$) higher ANTHRO-102 success rate (**84%**) than students who had not met the proposed prerequisite (**60%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

ANTHRO-106

- ENGL-015 and 101 both partially meet the prerequisite criteria for ANTHRO-102
- The correlation between successful grade in the target course and grade in the perquisite course is lower than the threshold of .35

ENGL-015 as a Possible Prerequisite for ANTHRO-106

- The current ANTHRO-106 success rate is **77%** and the data indicate that the proposed prerequisite may increase the ANTHRO-106 success rate to **83%**
- **69%** of the ANTHRO-106 students examined met the ENGL-015 prerequisite
- Students who successfully completed ENGL-015 and/or placed into ENGL-101 prior to taking ANTHRO-106 had a statistically significantly ($p = .009$) and substantially ($ES = .43$) higher ANTHRO-106 success rate (**83%**) than students who had not met the proposed prerequisite (**65%**)
- There was no disproportionate impact

ENGL-101 as a Possible Prerequisite for ANTHRO-106

- The current ANTHRO-106 success rate is **77%** and the data indicate that the proposed prerequisite may increase the ANTHRO-106 success rate to **86%**
- **55%** of the ANTHRO-106 students examined met the ENGL-101 prerequisite
- Students who successfully completed ENGL-101 prior to taking ANTHRO-106 had a statistically significantly ($p = .002$) and substantially ($ES = .44$) higher ANTHRO-106 success rate (**86%**) than students who had not met the proposed prerequisite (**67%**)
- There was no disproportionate impact

ART-100

- ENGL-015 and 101 both meet the prerequisite criteria for ART-100

ENGL-015 as a Possible Prerequisite for ART-100

- The current ART-100 success rate is **72%** and the data indicate that the proposed prerequisite may increase the ART-100 success rate to **78%**
- **60%** of the ART-100 students examined met the ENGL-015 prerequisite
- Students who successfully completed ENGL-015 and/or placed into ENGL-101 prior to taking ART-100 had a statistically significantly ($p < .001$) and substantially (ES = .35) higher ART-100 success rate (**78%**) than students who had not met the proposed prerequisite (**63%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

ENGL-101 as a Possible Prerequisite for ART-100

- The current ART-100 success rate is **72%** and the data indicate that the proposed prerequisite may increase the ART-100 success rate to **80%**
- **45%** of the ART-100 students examined met the ENGL-101 prerequisite
- Students who successfully completed ENGL-101 prior to taking ART-100 had a statistically significantly ($p < .001$) and substantially (ES = .34) higher ART-100 success rate (**80%**) than students who had not met the proposed prerequisite (**65%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

ART-102

- ENGL-015 partially meet the prerequisite criteria for ART-102
- The correlation between successful grade in the target course and grade in the perquisite course is lower than the threshold of .35
- ENGL-101 met the prerequisite criteria for ART-102

ENGL-015 as a Possible Prerequisite for ART-102

- The current ART-102 success rate is **70%** and the data indicate that the proposed prerequisite may increase the ART-102 success rate to **75%**
- **54%** of the ART-102 students examined met the ENGL-015 prerequisite
- Students who successfully completed ENGL-015 and/or placed into ENGL-101 prior to taking ART-102 had a statistically significantly ($p = .003$) and substantially (ES = .24) higher ART-102 success rate (**75%**) than students who had not met the proposed prerequisite (**64%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

ENGL-101 as a Possible Prerequisite for ART-102

- The current ART-102 success rate is **70%** and the data indicate that the proposed prerequisite may increase the ART-102 success rate to **78%**
- **40%** of the ART-102 students examined met the ENGL-101 prerequisite
- Students who successfully completed ENGL-101 prior to taking ART-102 had a statistically significantly ($p < .001$) and substantially (ES = .31) higher ART-102 success rate (**78%**) than students who had not met the proposed prerequisite (**64%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

PHIL-101

- ENGL-015 and 101 both meet the prerequisite criteria for PHIL-101

ENGL-015 as a Possible Prerequisite for PHIL-101

- The current PHIL-101 success rate is **69%** and the data indicate that the proposed prerequisite may increase the PHIL-101 success rate to **79%**
- **50%** of the PHIL-101 students examined met the ENGL-015 prerequisite
- Students who successfully completed ENGL-015 and/or placed into ENGL-101 prior to taking PHIL-101 had a statistically significantly ($p < .001$) and substantially (ES = .43) higher PHIL-101 success rate (**79%**) than students who had not met the proposed prerequisite (**59%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

ENGL-101 as a Possible Prerequisite for PHIL-101

- The current PHIL-101 success rate is **69%** and the data indicate that the proposed prerequisite may increase the PHIL-101 success rate to **80%**
- **38%** of the PHIL-101 students examined met the ENGL-101 prerequisite
- Students who successfully completed ENGL-101 prior to taking PHIL-101 had a statistically significantly ($p < .001$) and substantially (ES = .39) higher PHIL-101 success rate (**80%**) than students who had not met the proposed prerequisite (**62%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

PHIL-103

- ENGL-015 and 101 both ***do not*** meet the prerequisite criteria for PHIL-103

ENGL-015 as a Possible Prerequisite for PHIL-103

- The current PHIL-103 success rate is **77%** and the data indicate that the proposed prerequisite would not change the current PHIL-103 success rate
- **69%** of the PHIL-103 students examined met the ENGL-015 prerequisite
- Students who successfully completed ENGL-015 and/or placed into ENGL-101 prior to taking PHIL-103 had a lower (p = .812, ES = -.02) PHIL-103 success rate (**76.8%**) than students who had not met the proposed prerequisite (**77.8%**)
- There was no disproportionate impact

ENGL-101 as a Possible Prerequisite for PHIL-103

- The current PHIL-103 success rate is **77%** and the data indicate that the proposed prerequisite may increase the PHIL-103 success rate to **80%**
- **56%** of the PHIL-103 students examined met the ENGL-101 prerequisite
- Students who successfully completed ENGL-101 prior to taking PHIL-103 had a higher (p = .123, ES = .14) PHIL-103 success rate (**80%**) than students who had not met the proposed prerequisite (**74%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

PHIL-105

- ENGL-015 and 101 both meet the prerequisite criteria for PHIL-105

ENGL-015 as a Possible Prerequisite for PHIL-105

- The current PHIL-105 success rate is **62%** and the data indicate that the proposed prerequisite may increase the PHIL-105 success rate to **75%**
- **45%** of the PHIL-105 students examined met the ENGL-015 prerequisite
- Students who successfully completed ENGL-015 and/or placed into ENGL-101 prior to taking PHIL-105 had a statistically significantly ($p < .001$) and substantially (ES = .49) higher PHIL-105 success rate (**75%**) than students who had not met the proposed prerequisite (**51%**)
- There was no disproportionate impact

ENGL-101 as a Possible Prerequisite for PHIL-105

- The current PHIL-105 success rate is **62%** and the data indicate that the proposed prerequisite may increase the PHIL-105 success rate to **74%**
- **29%** of the PHIL-105 students examined met the ENGL-101 prerequisite
- Students who successfully completed ENGL-101 prior to taking PHIL-105 had a statistically significantly ($p = .006$) and substantially (ES = .34) higher PHIL-105 success rate (**74%**) than students who had not met the proposed prerequisite (**57%**)
- There was no disproportionate impact

SPEECH-125

- ENGL-015 ***does not*** meet the prerequisite criteria for SPEECH-125 because of disproportionate impact
- ENGL-101 meets the prerequisite criteria for SPEECH-125

ENGL-015 as a Possible Prerequisite for SPEECH-125

- The current SPEECH-125 success rate is **69%** and the data indicate that the proposed prerequisite may increase the SPEECH-125 success rate to **75%**
- **59%** of the SPEECH-125 students examined met the ENGL-015 prerequisite
- Students who successfully completed ENGL-015 and/or placed into ENGL-101 prior to taking SPEECH-125 had a statistically significantly ($p = .016$) and substantially ($ES = .29$) higher SPEECH-125 success rate (**75%**) than students who had not met the proposed prerequisite (**61%**)
- Disproportionate Impact occurred by age and the success rate gap between the disproportionately impacted groups increased

ENGL-101 as a Possible Prerequisite for SPEECH-125

- The current SPEECH-125 success rate is **69%** and the data indicate that the proposed prerequisite may increase the SPEECH-125 success rate to **81%**
- **41%** of the SPEECH-125 students examined met the ENGL-101 prerequisite
- Students who successfully completed ENGL-101 prior to taking SPEECH-125 had a statistically significantly ($p < .001$) and substantially ($ES = .45$) higher SPEECH-125 success rate (**81%**) than students who had not met the proposed prerequisite (**61%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

Crafton Hills College
Prerequisite Validation Studies

Background

The California Community Colleges Board of Governors adopted new Title 5 regulations on prerequisites, co-requisites and advisories on March 8, 2011 that permit faculty to establish prerequisites or co-requisites in English, reading, or mathematics for college-level courses in other disciplines based on content review alone or using content review with statistical validation. Prior to this change colleges could only establish prerequisites or co-requisites using statistical validation and content review. With the new changes to Title 5 regulations colleges choosing to establish prerequisites or co-requisites by content review alone must adopt a local, board approved plan that addresses specific criteria, per regulatory provisions.

Although colleges are now permitted to establish prerequisites or co-requisites using content review alone, there are statistical requirements that still apply. Post-implementation of the prerequisite or co-requisite, research needs to be done to determine the impact of the new prerequisites [§55003 c4]. Specifically, section 55003 (g)(2) states that the district establishing the prerequisite or co-requisite must conduct an evaluation to determine whether the prerequisite or co-requisite has a disproportionate impact on particular groups of students. In addition, the last mention of research in section 5500(g) relates to a trial period of two years in which research is being conducted and the final determination is being made about the effectiveness of the prerequisite. As part of this, the need to make a determination post-implementation whether the prerequisite courses have been made reasonably available may be required [§55000 c2].

Crafton Hills College is currently in the process of developing a board approved plan for establishing prerequisites. Accordingly, research examining the possible impact of English as a prerequisite for two Anthropology courses, two Art courses, three

Philosophy courses and one Speech course was conducted prior to the implementation of the prerequisite and follows the more restrictive Title 5 guidelines prior to 2011 that were stated in Section 55201(3)(e), “a course in communication or computation skills may be established as a prerequisite or corequisite for any course other than another course in communication or computation skills only if, in addition to conducting a content review, the district gathers data according to sound research practices and shows that a student is highly unlikely to succeed in the course unless the student has met the proposed prerequisite or corequisite.”

Prior to 2011, to assist districts in identifying and establishing “sound research practices,” the California Community College Chancellor’s Office, Academic Senate for California Community Colleges, the California Association of Community Colleges (CACC) Commission on Research, the Research & Planning (RP) Group (at the time divided into two entities – the Northern California Community College Research Group (NORCAL) and the Southern California Community College Institutional Research Association (SCCCIRA)), and the Matriculation Regional Advisory Committee all worked diligently throughout the late 1980s and 1990s to develop a number of seminal documents that have served as blueprints for researchers engaged in matriculation evaluation. Influential publications include:

- “The Model District Policy for Prerequisites, Corequisites, and Advisories on Recommended Preparation, and Other Limitations on Enrollment” (September, 1993)
- California Community College Chancellor’s Office “Matriculation Regulations” (rev. March 1998)
- “Prerequisites, Corequisites, Advisories, and Limitations on Enrollment” (Fall 1997) – A questions-and-answers document prepared by the California Community College Chancellor’s Office and the Academic Senate of California Community Colleges that provides technical assistance and interpretation of Title 5 regulations.
- “Are Prerequisites Really That Hard to Establish?” – A short follow-up document prepared by Bill Scroggins
- “Matriculation Standards” – Prepared by the Chancellor’s Office, this document identifies the various components of Matriculation and provides cross-references to Title 5 and AB-3 (Seymour-Campbell Matriculation Act of 1986)
- “Matriculation Local Research Options Project” (November, 1989) – the initial document prepared by the California Community College Chancellor’s Office,

CACC, SCCCIRA, NORCAL, and the Matriculation Regional Advisory Committee to assist districts in developing and conducting local Matriculation research

- "Assessment Validation Project Local Research Options" (February, 1991)
- "Matriculation Evaluation: Monographs on Designs from the Local Research Options Project" (February, 1992) – the second series of Matriculation research studies presented by the aforementioned groups
- "Matriculation Evaluation: Phase III Local Research Options" (June, 1992) – the third series of Matriculation research designs addressed by the CCCCO, CACC, SCCCIRA, and NORCAL

The Crafton Hills College (CHC) Office of Institutional Effectiveness, Research and Planning (OIERP) has thoroughly reviewed these various documents and has incorporated a number of the identified best practices into Matriculation research projects. Specific to the studies referenced in this document, the CHC OIERP has developed a consistent methodology for examining prerequisites, corequisites, and advisories courses. In this study, the prerequisite and target course are interdisciplinary, therefore, the CHC OIERP uses sound research practices and shows whether or not a student is highly unlikely to succeed in the course unless the student has met the proposed prerequisite (Prior to 2011, Title 5 §55201). The purpose of this research study is to use "sound research practices" to examine what extent English proficiency is a valid predictor of success in ANTHRO-102, 106, ART-100, 102, PHIL-101, 103, 105, and SPEECH-125. The table below illustrates each course, course title, and type of course examined in the prerequisite study.

Course	**Title**	**Type**
ANTHRO-102	Cultural Anthropology	Target Course
ANTHRO-106	Biological Anthropology	Target Course
ART-100	Art History I: Prehistoric Art to Medieval Art	Target Course
ART-102	Art History II: Renaissance Art to Modern Art	Target Course
PHIL-101	Introduction to Philosophy	Target Course
PHIL-103	Introduction to Logic: Argument and Evidence	Target Course
PHIL-105	Intro to Ethics: Moral Values in Today's Society	Target Course
SPEECH-125	Critical Thinking through Argumentation & Debate	Target Course
ENGL-015	Preparation for College Writing	Proposed Prerequisite
ENGL-101	Freshman Composition	Proposed Prerequisite

Sample

There were eight different samples for each target course where English was examined as a possible prerequisite.

- 432 students made their first attempt in ANTHRO-102 and earned a grade on record from Fall 2009 to Spring 2012. Of those, 306 (70.8%) students were successful.
- 201 students made their first attempt in ANTHRO-106 and earned a grade on record from Fall 2009 to Spring 2012. Of those, 155 (77.1%) students were successful.
- 716 students made their first attempt in ART-100 and earned a grade on record from Fall 2009 to Spring 2012. Of those, 516 (72.1%) students were successful.
- 648 students made their first attempt in ART-102 and earned a grade on record from Fall 2009 to Spring 2012. Of those, 451 (69.6%) students were successful.
- 934 students made their first attempt in PHIL-101 and earned a grade on record from Fall 2009 to Spring 2012. Of those, 642 (68.7%) students were successful.
- 529 students made their first attempt in PHIL-103 and earned a grade on record from Fall 2009 to Spring 2012. Of those, 408 (77.1%) students were successful.
- 289 students made their first attempt in PHIL-105 and earned a grade on record from Fall 2009 to Spring 2012. Of those, 178 (61.6%) students were successful.
- 298 students made their first attempt in SPEECH-125 and earned a grade on record from Fall 2009 to Spring 2012. Of those, 206 (69.1%) students were successful.

Methodology

Working with the Crafton Hills College Office of Instruction and the Dean of Arts and Sciences – the OIERP studied the effect of adding an English pre-requisite as a requirement for entrance into each of the following courses: ANTHRO-102, 106, ART-100, 102, PHIL-101, 103, 105, and SPEECH-125. The OIERP explored the following English courses as possible prerequisites; ENGL-015 (Preparation for College Writing), and ENGL-101 (Freshman Composition). The research to measure the strength of the relationship between students English level and the successful completion of each of

the target courses. In this study English assessment placement and course completion are being treated as equivalent to one another. Table 1 illustrates how the English assessment placements are equivalent to successfully completing an English course.

Table 1: English Course Successful Grades and Equivalent Corresponding English Placements.

Successful Grade in Following Course	Corresponding English Placement
ENGL-015	ENGL-101
ENGL-101	NA

When examining how well the English assessment test is a valid predictor of student outcomes in the eight target courses there are five possible Criterion/Outcome measures of student course performance:

1. Points or scores
2. Midterm grade
3. Final grade
4. Only Credit/No Credit
5. Successful/Not Successful

The most common measure used is final grade. From a research perspective, use of a final grade is attractive because final grades are accessible from a computer database; however, one difficulty with using final grades as a criterion measure is that students who withdraw may not be included (Rasor, 1991). In addition, grades represent a limited five-point scale of performance and using a five point-scale does not control for instructor variation in evaluation procedures. Therefore, to establish sufficient evidence to enforce prerequisites that have a communication or computational skills component, the Crafton Hills College Office of Institutional Effectiveness, Research and Planning has taken the following approaches: examination of the statistical significance and effect size comparison of the performance in the target course of students who did and did not meet the proposed prerequisite using the Independent Samples *t*-Test and examination of the restricted bivariate correlation coefficient and correction for restrict of range using the Pearson's Product Moment Correlation Coefficient.

Comparison of Performance in the Target Course of Students Who Did and Did Not Meet the Prerequisite

Using RP Group definitions that have been adopted by the Chancellor's Office, the Crafton Hills College Office of Institutional Effectiveness, Research and Planning used Management Information System (MIS) data to initially identify all students who earned a grade on record (A, B, C, CR, D, F, FW, NC, I, or W) in the target courses, from Fall 2009 to Spring 2012 (summer semesters were excluded). While a student may have taken the target course multiple times, for purposes of prerequisite validation only the first attempt in the target course was examined. Further coding was created to identify students who were successful (earned an A, B, C, or CR grade) or unsuccessful (earned a grade of D, F, FW, NC, I, or W) in the target course. Successful grades were divided by total grades earned on record to compute success rate.

Once this step was completed, course outcomes for students who successfully completed the prerequisite course, or tested at an equivalent English assessment level prior to completing the target courses were merged into the target course file. For prerequisite courses, the best attempt (i.e., the highest grade earned in the prerequisite course) was identified and merged into the target file. Using the aforementioned definitions, a student was identified as having met the prerequisite if he/she earned a successful grade on record in the proposed prerequisite course or the student earned a sufficiently high enough placement recommendation on the assessment test. Conversely, students who did not meet the prerequisite were identified as students who: a) did not take the proposed prerequisite course; b) the highest grade earned on record in the proposed prerequisite courses was a non-successful grade; or c) did not score at an equivalent level on the assessment test.

Once the target course outcome of prerequisite completers and non-completers was identified, the Office of Institutional Effectiveness, Research and Planning conducted an independent samples t-test to determine whether statistically significant differences in the target course outcome existed between prerequisite completers and non-completers. The table on page 19 illustrates the overall success rates in the target courses, the success rates of students who met the prerequisites, the success rates of

students who did not meet the prerequisites, the percentage of students in the target courses who met the prerequisite, and whether the success rates of completers/non-completers were identified as statistically significantly different ($p < .05$).

Effect Size

Recognizing that statistically significant differences are often an artifact of sample size (with large samples, only minimal differences can produce statistically significant results; conversely, with small samples large outcome differences may not be identified as statistically significantly different), effect size was also examined. In essence, effect size measures the strength of a relationship between two variables, controlling for the influence of sample size.

Since t-tests were initially used to explore whether statistically significant differences existed between prerequisite completers and non-completers, the logical measure employed by the Office of Institutional Effectiveness, Research and Planning to determine effect size was Cohen's *d*. Cohen's *d* is defined as the difference between the two means divided by the pooled standard deviation for the two means. Obtaining basic statistical data about the populations in question (means and standard deviations), researchers can easily calculate effect size. While interpretations vary, the most commonly accepted interpretations suggest that a *d* of 0.20 indicates a small effect, 0.50 a medium effect, and 0.80 or higher a large effect. Recognizing the difficulty in identifying a relationship between two variables in a quasi-experimental environment like postsecondary education, for the purposes of the current study sufficient evidence was considered to exist if an effect size of 0.20 or higher was observed.

Restricted Bivariate Correlation Coefficient and Corrections for Restriction of Range

Correlation coefficients are another method of examining the strength of a relationship between two variables. For the purposes of the current study researchers employed what is probably the most frequently used correlation coefficient, Pearson's Product Moment Correlation Coefficient, more commonly known as Pearson's *r*. The Pearson's *r* employed in the current study examined the relationship between performance in the prerequisite course and performance in the target course. Again recognizing the quasi-

experimental nature of postsecondary education, the Chancellor's Office has established a rough rule-of-thumb for obtained correlation coefficient. While usually considered a moderate association, the Chancellor's Office has established a positive correlation coefficient of .35 as sufficient evidence that a relationship exists between a prerequisite course and a target course, assuming that $p < .05$.

While the Pearson's *r* provides an initial measure of the association between two variables, an important consideration is the restricted distribution of prerequisite course grades. In practical terms, only students who *successfully* complete the prerequisite course will be permitted to enroll in the target course. While both distributions (prerequisite and target course grades) represent continuous data, one – the prerequisite course grades – are restricted to students who were successful in the prerequisite course ("C" grade or higher). Consistent with methodology cited in one of the local research options documents, the CHC OIERP recalculated the correlation coefficient between the prerequisite and target courses, correcting for restriction of range. The excel spreadsheet on page 19 identify the restricted bivariate correlation coefficients, the number of cases examined in correlation generated, the p value of the correlation, and the correlation after a correction for restriction of range is applied. Again, a correlation coefficient of .35 or higher is considered sufficient evidence when examining the correlation corrected for restriction of range.

Sufficient Evidence to Implement Proposed Prerequisite

For local validation efforts, the CHC OIERP has developed a simple color-coding scheme to indicate whether sufficient evidence existed to implement the proposed prerequisite:

- Green – Sufficient evidence exists to enforce the prerequisite:
  - Cohen's d effect size is .20 or higher and the Correlation Corrected for the Restriction of Range is .35 or higher; and
  - The p-value for Cohen's d is statistically significant ($p < .05$), indicating that the sample size is large enough to render a reliable decision; and
  - There is no disproportionate impact or the success rate gap between the disproportionately impacted groups is reduced or does not exist.
- Yellow – Although evidence exists, only one out of the two measures (i.e. Cohen's d effect size and the Correlation Corrected for the Restriction of Range)

supports the prerequisite. Further discussion should occur within the department and the Curriculum Committee before the prerequisite is enforced.

- Red – Data does not exist to support enforcement of the prerequisite. None of the measures explored meet pre-established criteria or the success rate gap from disproportionately impacted groups is not reduced.
- **Insufficient Data** – While evidence (e.g.: effect size) may point to the efficacy of the prerequisite, the sample size is too small to render a reliable decision.

The table in the Results Section presents evidence for the interdisciplinary prerequisites that were examined and the color-coded recommendation generated by the OIERP based upon the data examined.

The Target Course Includes the Following Semesters: Fall 2009 Through Spring 2012.

The Prerequisite Course Completions and Placement Recommendations Include the Following Semesters: Fall 2006 Through Fall 2011.

	Selected Students who made their First Attempt in Target Course where a GOR was Earned				Selected Students Best Grade in the Pre-Requisite Course		Success Rate in Target Course of Students who **met** the Pre-requisite by successfully completing course or placing into equivalent reading course			% of Target Course GOR Earners who Met Prereq	Success Rate in Target Course of Students who DO NOT Meet the Pre-requisite			P Value of the Success Rate Difference between those who meet and do not meet the Pre-requisite	Effect Size (Cohen's d)	Restricted Bivariate Correlation Coefficient	Restricted Bivariate Correlation Coefficient N	Restricted Bivariate Correlation Coefficient P	Correlation Corrected for Restriction of Range	Disproportionate Impact	Success Rate Gap between Disproportinately Impacted Groups is Reduced or Does Not Exist	Meets Threshold
#	Course	Successful	GOR	%	Prereq. Course	Method of Eligibility	Successful	GOR	%		Successful	GOR	%									
1	ANTHRO-102	306	432	70.8%	ENGL-015	Success in ENGL-015 or higher	172	210	81.9%	48.6%	102	183	55.7%	< .001	0.570							
	ANTHRO-102	306	432	70.8%	ENGL-015	Placement into ENGL-101	19	24	79.2%	5.6%	102	183	55.7%	0.012	0.470							
	ANTHRO-102	306	432	70.8%	ENGL-015	Met Both Methods Prior to Target Course	13	15	86.7%	3.5%	102	183	55.7%	0.002	0.630							
	ANTHRO-102	306	432	70.8%	ENGL-015	Total for All Methods of Eligbility Above	204	249	81.9%	57.6%	102	183	55.7%	< .001	0.580	0.289	262	< .001	0.487	Yes	Yes	Yes
	ANTHRO-102	306	432	70.8%	ENGL-101	Success in ENGL-101 or higher	162	192	84.4%	44.4%	144	240	60.0%	< .001	0.540	0.313	237	< .001	0.509	Yes	Yes	Yes
2	ANTHRO-106	155	201	77.1%	ENGL-015	Success in ENGL-015 or higher	89	108	82.4%	53.7%	40	62	64.5%	0.013	0.420							
	ANTHRO-106	155	201	77.1%	ENGL-015	Placement into ENGL-101	10	14	71.4%	7.0%	40	62	64.5%	0.622	0.140							
	ANTHRO-106	155	201	77.1%	ENGL-015	Met Both Methods Prior to Target Course	16	17	94.1%	8.5%	40	62	64.5%	0.001	0.650							
	ANTHRO-106	155	201	77.1%	ENGL-015	Total for All Methods of Eligbility Above	115	139	82.7%	69.2%	40	62	64.5%	0.009	0.430	0.180	140	0.034	0.324	No	Not Applicable	ES Only
	ANTHRO-106	155	201	77.1%	ENGL-101	Success in ENGL-101 or higher	94	110	85.5%	54.7%	61	91	67.0%	0.002	0.440	0.170	132	0.051	0.297	No	Not Applicable	ES Only
3	ART-100	516	716	72.1%	ENGL-015	Success in ENGL-015 or higher	279	362	77.1%	50.6%	182	290	62.8%	< .001	0.310							
	ART-100	516	716	72.1%	ENGL-015	Placement into ENGL-101	32	38	84.2%	5.3%	182	290	62.8%	0.001	0.450							
	ART-100	516	716	72.1%	ENGL-015	Met Both Methods Prior to Target Course	23	26	88.5%	3.6%	182	290	62.8%	< .001	0.540							
	ART-100	516	716	72.1%	ENGL-015	Total for All Methods of Eligbility Above	334	426	78.4%	59.5%	182	290	62.8%	< .001	0.350	0.243	449	< .001	0.430	Yes	Yes	Yes
	ART-100	516	716	72.1%	ENGL-101	Success in ENGL-101 or higher	258	321	80.4%	44.8%	258	395	65.3%	< .001	0.340	0.264	412	< .001	0.454	Yes	Yes	Yes
4	ART-102	451	648	69.6%	ENGL-015	Success in ENGL-015 or higher	202	277	72.9%	42.7%	192	301	63.8%	0.018	0.200							
	ART-102	451	648	69.6%	ENGL-015	Placement into ENGL-101	35	45	77.8%	6.9%	192	301	63.8%	0.042	0.290							
	ART-102	451	648	69.6%	ENGL-015	Met Both Methods Prior to Target Course	22	25	88.0%	3.9%	192	301	63.8%	0.001	0.510							
	ART-102	451	648	69.6%	ENGL-015	Total for All Methods of Eligbility Above	259	347	74.6%	53.5%	192	301	63.8%	0.003	0.240	0.175	352	0.001	0.308	Yes	Yes	ES Only
	ART-102	451	648	69.6%	ENGL-101	Success in ENGL-101 or higher	201	257	78.2%	39.7%	250	391	63.9%	< .001	0.310	0.318	314	< .001	0.492	Yes	Yes	Yes
5	PHIL-101	642	934	68.7%	ENGL-015	Success in ENGL-015 or higher	304	392	77.6%	42.0%	272	464	58.6%	< .001	0.400							
	PHIL-101	642	934	68.7%	ENGL-015	Placement into ENGL-101	37	44	84.1%	4.7%	272	464	58.6%	< .001	0.520							
	PHIL-101	642	934	68.7%	ENGL-015	Met Both Methods Prior to Target Course	29	34	85.3%	3.6%	272	464	58.6%	< .001	0.540							
	PHIL-101	642	934	68.7%	ENGL-015	Total for All Methods of Eligbility Above	370	470	78.7%	50.3%	272	464	58.6%	< .001	0.430	0.249	527	< .001	0.421	Yes	Yes	Yes
	PHIL-101	642	934	68.7%	ENGL-101	Success in ENGL-101 or higher	280	350	80.0%	37.5%	362	584	62.0%	< .001	0.390	0.251	469	< .001	0.407	Yes	Yes	Yes
6	PHIL-103	408	529	77.1%	ENGL-015	Success in ENGL-015 or higher	253	327	77.4%	61.8%	126	162	77.8%	0.919	-0.010							
	PHIL-103	408	529	77.1%	ENGL-015	Placement into ENGL-101	20	29	69.0%	5.5%	126	162	77.8%	0.346	0.210							
	PHIL-103	408	529	77.1%	ENGL-015	Met Both Methods Prior to Target Course	9	11	81.8%	2.1%	126	162	77.8%	0.749	0.100							
	PHIL-103	408	529	77.1%	ENGL-015	Total for All Methods of Eligbility Above	282	367	76.8%	69.4%	126	162	77.8%	0.812	-0.020	0.169	333	0.002	0.306	No	Not Applicable	No
	PHIL-103	408	529	77.1%	ENGL-101	Success in ENGL-101 or higher	235	295	79.7%	55.8%	173	234	73.9%	0.123	0.140	0.173	312	0.002	0.296	Yes	Yes	No
7	PHIL-105	178	289	61.6%	ENGL-015	Success in ENGL-015 or higher	62	87	71.3%	30.1%	81	159	50.9%	0.001	0.410							
	PHIL-105	178	289	61.6%	ENGL-015	Placement into ENGL-101	25	33	75.8%	11.4%	81	159	50.9%	0.004	0.500							
	PHIL-105	178	289	61.6%	ENGL-015	Met Both Methods Prior to Target Course	10	10	100.0%	3.5%	81	159	50.9%	< .001	0.980							
	PHIL-105	178	289	61.6%	ENGL-015	Total for All Methods of Eligbility Above	97	130	74.6%	45.0%	81	159	50.9%	< .001	0.490	0.240	131	0.006	0.422	No	Not Applicable	Yes
	PHIL-105	178	289	61.6%	ENGL-101	Success in ENGL-101 or higher	61	83	73.5%	28.7%	117	206	56.8%	0.006	0.340	0.338	123	< .001	0.517	No	Not Applicable	Yes
8	SPEECH-125	206	298	69.1%	ENGL-015	Success in ENGL-015 or higher	110	142	77.5%	47.7%	74	121	61.2%	0.004	0.360							
	SPEECH-125	206	298	69.1%	ENGL-015	Placement into ENGL-101	18	31	58.1%	10.4%	74	121	61.2%	0.759	0.060							
	SPEECH-125	206	298	69.1%	ENGL-015	Met Both Methods Prior to Target Course	4	4	100.0%	1.3%	74	121	61.2%	< .001	0.800							
	SPEECH-125	206	298	69.1%	ENGL-015	Total for All Methods of Eligbility Above	132	177	74.6%	59.4%	74	121	61.2%	0.016	0.290	0.152	168	0.049	0.266	Yes	No	ES Only
	SPEECH-125	206	298	69.1%	ENGL-101	Success in ENGL-101 or higher	100	123	81.3%	41.3%	106	175	60.6%	< .001	0.450	0.298	156	< .001	0.469	Yes	Yes	Yes

Green - Sufficient evidence to enforce pre-requisite (TWO or more, and No DPI or Success Rate Gap reduced)

Yellow - Further discussion required (Only 1 of 2 measures supported)

Red - Data does not support enforcement of pre-requisite.

Results:
Appropriateness of Prerequisites

ANTHRO-102

- ENGL-015 and 101 both meet the prerequisite criteria for ANTHRO-102

ENGL-015 as a Possible Prerequisite for ANTHRO-102

- The current ANTHRO-102 success rate is **71%** and the data indicate that the proposed prerequisite may increase the ANTHRO-102 success rate to **82%**
- **58%** of the ANTHRO-102 students examined met the ENGL-015 prerequisite
- Students who successfully completed ENGL-015 and/or placed into ENGL-101 prior to taking ANTHRO-102 had a statistically significantly ($p < .001$) and substantially (ES = .58) higher ANTHRO-102 success rate (**82%**) than students who had not met the proposed prerequisite (**56%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

ENGL-101 as a Possible Prerequisite for ANTHRO-102

- The current ANTHRO-102 success rate is **71%** and the data indicate that the proposed prerequisite may increase the ANTHRO-102 success rate to **84%**
- **44%** of the ANTHRO-102 students examined met the ENGL-101 prerequisite
- Students who successfully completed ENGL-101 prior to taking ANTHRO-102 had a statistically significantly ($p < .001$) and substantially (ES = .54) higher ANTHRO-102 success rate (**84%**) than students who had not met the proposed prerequisite (**60%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

ANTHRO-106

- ENGL-015 and 101 both partially meet the prerequisite criteria for ANTHRO-102
- The correlation between successful grade in the target course and grade in the perquisite course is lower than the threshold of .35

ENGL-015 as a Possible Prerequisite for ANTHRO-106

- The current ANTHRO-106 success rate is **77%** and the data indicate that the proposed prerequisite may increase the ANTHRO-106 success rate to **83%**
- **69%** of the ANTHRO-106 students examined met the ENGL-015 prerequisite

- Students who successfully completed ENGL-015 and/or placed into ENGL-101 prior to taking ANTHRO-106 had a statistically significantly ($p = .009$) and substantially (ES = .43) higher ANTHRO-106 success rate (**83%**) than students who had not met the proposed prerequisite (**65%**)
- There was no disproportionate impact

ENGL-101 as a Possible Prerequisite for ANTHRO-106

- The current ANTHRO-106 success rate is **77%** and the data indicate that the proposed prerequisite may increase the ANTHRO-106 success rate to **86%**
- **55%** of the ANTHRO-106 students examined met the ENGL-101 prerequisite
- Students who successfully completed ENGL-101 prior to taking ANTHRO-106 had a statistically significantly ($p = .002$) and substantially (ES = .44) higher ANTHRO-106 success rate (**86%**) than students who had not met the proposed prerequisite (**67%**)
- There was no disproportionate impact

ART-100

- ENGL-015 and 101 both meet the prerequisite criteria for ART-100

ENGL-015 as a Possible Prerequisite for ART-100

- The current ART-100 success rate is **72%** and the data indicate that the proposed prerequisite may increase the ART-100 success rate to **78%**
- **60%** of the ART-100 students examined met the ENGL-015 prerequisite
- Students who successfully completed ENGL-015 and/or placed into ENGL-101 prior to taking ART-100 had a statistically significantly ($p < .001$) and substantially (ES = .35) higher ART-100 success rate (**78%**) than students who had not met the proposed prerequisite (**63%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

ENGL-101 as a Possible Prerequisite for ART-100

- The current ART-100 success rate is **72%** and the data indicate that the proposed prerequisite may increase the ART-100 success rate to **80%**
- **45%** of the ART-100 students examined met the ENGL-101 prerequisite
- Students who successfully completed ENGL-101 prior to taking ART-100 had a statistically significantly ($p < .001$) and substantially (ES = .34) higher ART-100 success rate (**80%**) than students who had not met the proposed prerequisite (**65%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

ART-102

- ENGL-015 partially meet the prerequisite criteria for ART-102
- The correlation between successful grade in the target course and grade in the perquisite course is lower than the threshold of .35
- ENGL-101 met the prerequisite criteria for ART-102

ENGL-015 as a Possible Prerequisite for ART-102

- The current ART-102 success rate is **70%** and the data indicate that the proposed prerequisite may increase the ART-102 success rate to **75%**
- **54%** of the ART-102 students examined met the ENGL-015 prerequisite
- Students who successfully completed ENGL-015 and/or placed into ENGL-101 prior to taking ART-102 had a statistically significantly ($p = .003$) and substantially (ES = .24) higher ART-102 success rate (**75%**) than students who had not met the proposed prerequisite (**64%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

ENGL-101 as a Possible Prerequisite for ART-102

- The current ART-102 success rate is **70%** and the data indicate that the proposed prerequisite may increase the ART-102 success rate to **78%**
- **40%** of the ART-102 students examined met the ENGL-101 prerequisite
- Students who successfully completed ENGL-101 prior to taking ART-102 had a statistically significantly ($p < .001$) and substantially (ES = .31) higher ART-102 success rate (**78%**) than students who had not met the proposed prerequisite (**64%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

PHIL-101

- ENGL-015 and 101 both meet the prerequisite criteria for PHIL-101

ENGL-015 as a Possible Prerequisite for PHIL-101

- The current PHIL-101 success rate is **69%** and the data indicate that the proposed prerequisite may increase the PHIL-101 success rate to **79%**
- **50%** of the PHIL-101 students examined met the ENGL-015 prerequisite
- Students who successfully completed ENGL-015 and/or placed into ENGL-101 prior to taking PHIL-101 had a statistically significantly ($p < .001$) and substantially (ES = .43) higher PHIL-101 success rate (**79%**) than students who had not met the proposed prerequisite (**59%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

ENGL-101 as a Possible Prerequisite for PHIL-101

- The current PHIL-101 success rate is **69%** and the data indicate that the proposed prerequisite may increase the PHIL-101 success rate to **80%**
- **38%** of the PHIL-101 students examined met the ENGL-101 prerequisite
- Students who successfully completed ENGL-101 prior to taking PHIL-101 had a statistically significantly ($p < .001$) and substantially (ES = .39) higher PHIL-101 success rate (**80%**) than students who had not met the proposed prerequisite (**62%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

PHIL-103

- ENGL-015 and 101 both ***do not*** meet the prerequisite criteria for PHIL-103

ENGL-015 as a Possible Prerequisite for PHIL-103

- The current PHIL-103 success rate is **77%** and the data indicate that the proposed prerequisite would not change the current PHIL-103 success rate
- **69%** of the PHIL-103 students examined met the ENGL-015 prerequisite
- Students who successfully completed ENGL-015 and/or placed into ENGL-101 prior to taking PHIL-103 had a lower ($p = .812$, ES = -.02) PHIL-103 success rate (**76.8%**) than students who had not met the proposed prerequisite (**77.8%**)
- There was no disproportionate impact

ENGL-101 as a Possible Prerequisite for PHIL-103

- The current PHIL-103 success rate is **77%** and the data indicate that the proposed prerequisite may increase the PHIL-103 success rate to **80%**
- **56%** of the PHIL-103 students examined met the ENGL-101 prerequisite
- Students who successfully completed ENGL-101 prior to taking PHIL-103 had a higher ($p = .123$, ES = .14) PHIL-103 success rate (**80%**) than students who had not met the proposed prerequisite (**74%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

PHIL-105

- ENGL-015 and 101 both meet the prerequisite criteria for PHIL-105

ENGL-015 as a Possible Prerequisite for PHIL-105

- The current PHIL-105 success rate is **62%** and the data indicate that the proposed prerequisite may increase the PHIL-105 success rate to **75%**
- **45%** of the PHIL-105 students examined met the ENGL-015 prerequisite
- Students who successfully completed ENGL-015 and/or placed into ENGL-101 prior to taking PHIL-105 had a statistically significantly ($p <$

.001) and substantially (ES = .49) higher PHIL-105 success rate (**75%**) than students who had not met the proposed prerequisite (**51%**)
    - There was no disproportionate impact

ENGL-101 as a Possible Prerequisite for PHIL-105

- The current PHIL-105 success rate is **62%** and the data indicate that the proposed prerequisite may increase the PHIL-105 success rate to **74%**
- **29%** of the PHIL-105 students examined met the ENGL-101 prerequisite
- Students who successfully completed ENGL-101 prior to taking PHIL-105 had a statistically significantly (p = .006) and substantially (ES = .34) higher PHIL-105 success rate (**74%**) than students who had not met the proposed prerequisite (**57%**)
- There was no disproportionate impact

SPEECH-125

- ENGL-015 ***does not*** meet the prerequisite criteria for SPEECH-125 because of disproportionate impact
- ENGL-101 meets the prerequisite criteria for SPEECH-125

ENGL-015 as a Possible Prerequisite for SPEECH-125

- The current SPEECH-125 success rate is **69%** and the data indicate that the proposed prerequisite may increase the SPEECH-125 success rate to **75%**
- **59%** of the SPEECH-125 students examined met the ENGL-015 prerequisite
- Students who successfully completed ENGL-015 and/or placed into ENGL-101 prior to taking SPEECH-125 had a statistically significantly (p = .016) and substantially (ES = .29) higher SPEECH-125 success rate (**75%**) than students who had not met the proposed prerequisite (**61%**)
- Disproportionate Impact occurred by age and the success rate gap between the disproportionately impacted groups increased

ENGL-101 as a Possible Prerequisite for SPEECH-125

- The current SPEECH-125 success rate is **69%** and the data indicate that the proposed prerequisite may increase the SPEECH-125 success rate to **81%**
- **41%** of the SPEECH-125 students examined met the ENGL-101 prerequisite
- Students who successfully completed ENGL-101 prior to taking SPEECH-125 had a statistically significantly (p < .001) and substantially (ES = .45) higher SPEECH-125 success rate (**81%**) than students who had not met the proposed prerequisite (**61%**)
- Disproportionate Impact occurred by age; however, the success rate between the disproportionately impacted groups does not exist with the proposed prerequisite

Disproportionate Impact and Differential Prediction

In addition to providing evidence that the proposed prerequisite increases the likelihood of successfully completing the target course, section 55003 (g)(2) in Title 5 states that the district establishing the prerequisite or co-requisite must conduct an evaluation to determine whether the prerequisite or co-requisite has a disproportionate impact on particular groups of students described in terms of race, ethnicity, gender, age or disability, as defined by the Chancellor. When there is a disproportionate impact on any such group of students, the district shall make a determination whether the prerequisite courses have been made reasonably available [§55000 c2]. To clarify, the Chancellor's Office has operationally defined disproportionate impact, stating that it occurs when, "…the percentage of persons from a particular racial, ethnic, gender, age or disability group who are directed to a particular service or placement based on an assessment instrument, method or procedure is significantly different than the representation of that group in the population of persons being assessed and that discrepancy is not justified by empirical evidence demonstrating that the assessment instrument, method or procedure is a valid and reliable predictor of performance in the relevant educational setting." Phillips, Spurling, and Armstrong go on to state, "while the issue of access is important, the real question is access for what purpose. Access needs to lead to goal attainment. Without goal attainment, access becomes a meaningless exercise."

A useful statistical model in analyzing disproportionate impact is classification and regression tree (CART) modeling, a statistical application that is useful in situations in which the overall goal is to divide a population into segments that differ with respect to a designated criterion. In short, CART modeling affords researchers the opportunity to examine the interaction and impact of a number of distinct categorical predictor variables (e.g., gender, ethnicity, age, and disability) on a categorical dependent variable (e.g., met prerequisite/did not meet prerequisite). CART modeling initially identifies the best predictor variable, conducting a splitting algorithm that further identifies additional statistically significant predictor variables and splits these variables into smaller subgroups. CART modeling merges categories of a predictor variable that

are not significantly different. This merging, combined with the splitting algorithm, ensures that cases in the same segment are homogeneous with respect to the segmentation criterion, while cases in different segments tend to be heterogeneous with respect to the segmentation criterion. As it applies to disproportionate impact, CART modeling has a number of distinct advantages over traditional statistical applications used to examine categorical data (e.g., chi-square, cluster analysis, etc.). Utilizing CART modeling, researchers can easily determine whether specific aspects of numerous categorical predictor variables merge to provide a more accurate identification of populations experiencing disproportionate impact (e.g., male Latino students under twenty-one years of age, female Asian students 30 to 34 years of age, etc.).

As it pertains to this study, CART modeling was conducted to determine whether specific student populations disproportionately meet/do not meet the proposed prerequisites. The following predictor variables were entered into each CART model:

Gender:
- Group 1) Female
- Group 2) Male
- Group 3) Unknown/No Response

Ethnicity:
- Group 1) Asian
- Group 2) African American
- Group 3) Hispanic
- Group 4) Native American
- Group 5) Caucasian
- Group 6) Unknown/No Response

Age:
- Group 1) 19 or Younger
- Group 2) 20 to 24 Years of Age
- Group 3) 25 to 29 Years of Age
- Group 4) 30 to 34 Years of Age
- Group 5) 35 to 39 Years of Age
- Group 6) 40 to 49 Years of Age
- Group 7) 50 Years of Age or Older
- Group 8) Unknown/No Response

Disability:

Group 1) Students Who Do Not Have Disabilities
Group 2) Students With Disabilities

To examine whether disproportionate impact existed, CART models were generated for each possible prerequisite course/target course combination. The third column from the right in the table on page 19 ("Disproportionate Impact") identifies whether disproportionate impact was observed ("Yes" if disproportionate impact was observed; "No" if disproportionate impact was not observed).

When findings indicate that prerequisites may result in possible disproportionate impact, it is useful to conduct additional research to evaluate whether a pre-requisite would have a disparate impact, a mathematical comparison must be made of the disproportionately impacted group's predicted success rate versus the success rate of the other group. Accordingly, the predicted outcome of the disproportionately impacted group was examined to determine if there was an increase in the success rates and a decrease in the gap between the expected outcomes for both groups. Consequently, if the success rate gap between the two groups is reduced and the prerequisite increases the likelihood of success for the disproportionately impacted group then it is acceptable to proceed with the prerequisite (Meehl, & Rosen, 1955; Phillips, Spurling, & Armstrong, 2002). Conversely, it is important to remember that there are other considerations besides the success of students. Access to programs and the right to fail are also areas that need to be addressed when considering selection models for highly impacted programs. If high standards on a prediction instrument deny access disproportionately to minority groups, then such a selection method might be considered unfair. While the issue of access is important, the real question is access for what purpose. Access needs to lead to goal attainment. Without goal attainment, access becomes a meaningless exercise. Moreover, according to Meehl and Rosen's argument, given that not all applicants can be served, it makes sense to serve those most likely to succeed. In addition, if a new higher standard were imposed, it is hard to know how many students in each group in the applicant population would meet that higher standard. As a result, if the differential prediction analysis indicates that the gap between groups is

reduced and the likelihood of success increases for the disproportionately impacted group then it is acceptable to institute the prerequisite and monitor the progress of students.

The graphs and tables on the following pages identify:

- student populations by gender, age, ethnicity, and/or disability that experienced disproportionate impact (NOTE: only outcomes that resulted in observed disproportionate impact are included. If a CART model did not identify the occurrence of disproportionate impact ("No" in the Disproportionate Impact columns on pages 11), no further analyses were conducted
- the success rates of segmented groups with and without prerequisite enforcement
- whether the proposed prerequisite results in an increase in the target course success rate for the disproportionately impacted group(s)
- whether enforcement of the proposed prerequisite decreases the target course success rate gap between the expected outcomes for both groups

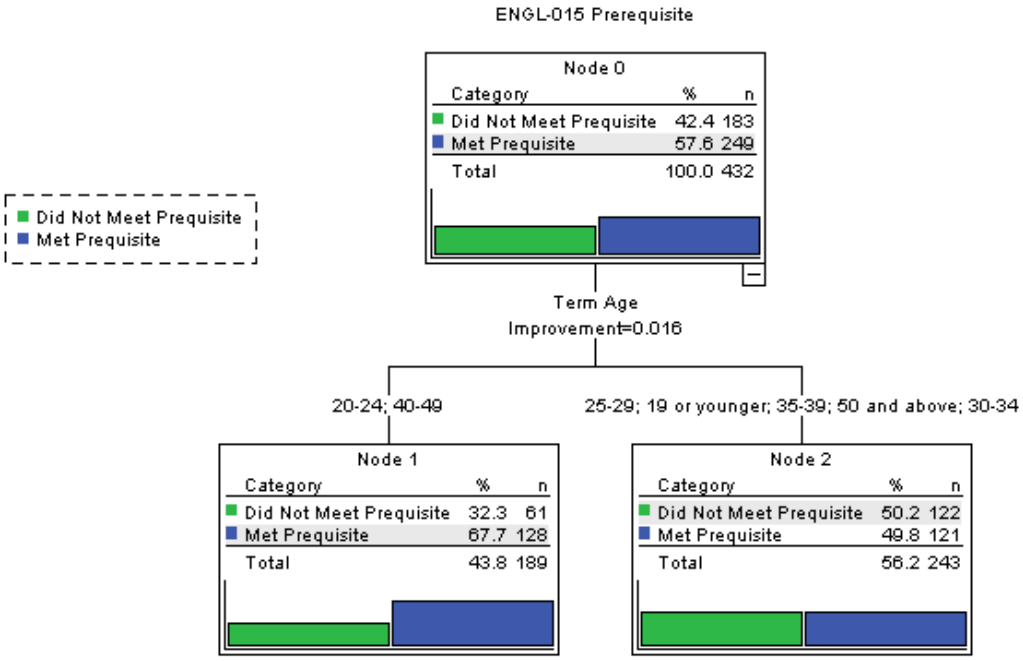
ENGL-015 as a Prerequisite to ANTHRO-102

Disproportionate Impact

The figure on the following page uses segmentation modeling to identify disproportionate impact when ENGL-015 was examined as a possible prerequisite for ANTHRO-102. Overall, 58% of students who entered ANTHRO-102 successfully completed the ENGL-015 prerequisite. However, 68% of student's age 20-24 and 40-49 who entered ANTHRO-102, successfully completed the ENGL-015 prerequisite. Conversely, only 50% of student's age 19 years old or younger, 25-39, and 50 years old or older who entered ANTHRO-102, successfully completed the ENGL-015 prerequisite. ***This finding, an 18% difference between segments, represents an observed disproportionate impact by age.***

Equally important is how the ENGL-015 prerequisite affects the ANTHRO-102 success rates of students in each segment. As the table on the following page indicates, the current success rate of students 20-24 and 40-49 years old is 70% while the success rate of students 19 years old or younger, 25-39, and 50 years old or older was 72%, a 2% differential. When students who met the ENGL-015 prerequisite were examined; 78% of students age 20-24 and 40-49 years old were successful and 86% of students 19 years old or younger, 25-39, and 50 years old or older were successful. ***Overall, the ANTHRO-102 success rates for both groups improved; an increase of 8% for those 20-24 and 40-49 years old and an increase of 14% for those 19 years old or younger, 25-39, and 50 years old or older. Furthermore, students in the disproportionately impacted segment (i.e. 19 years old or younger, 25-39, and 50 years old or older) demonstrated a higher ANTHRO-102 course success rate, 86% compared to 78% of the students not in the disproportionately impacted group.***

CART Segmentation Model Showing Disproportionate Impact When Prerequisite for ANTHRO-102 is ENGL-015 (Age, Gender, Ethnicity, & Disability examined)



***Risk Estimate = .421, SE of Risk Estimate = .024, Improvement set to .01, Child Node set to 5% of Total N, Parent Node is twice the Child Node.**

The Impact of ENGL-015 as a Prerequisite for ANTHRO-102 on the Two Age Categories Identified in the Disproportionate Impact Study

Node	Age	All Students	Students that Meet PreReq	Percent of All Students	Current Success Rate	New Success Rate
1	20-24 and 40-49 year olds	189	128	67.7	69.8	78.1
2	19 or younger, 25-39, and 50 years old or older	243	121	49.8	71.6	86.0
	Total	432	249	57.6	70.8	81.9

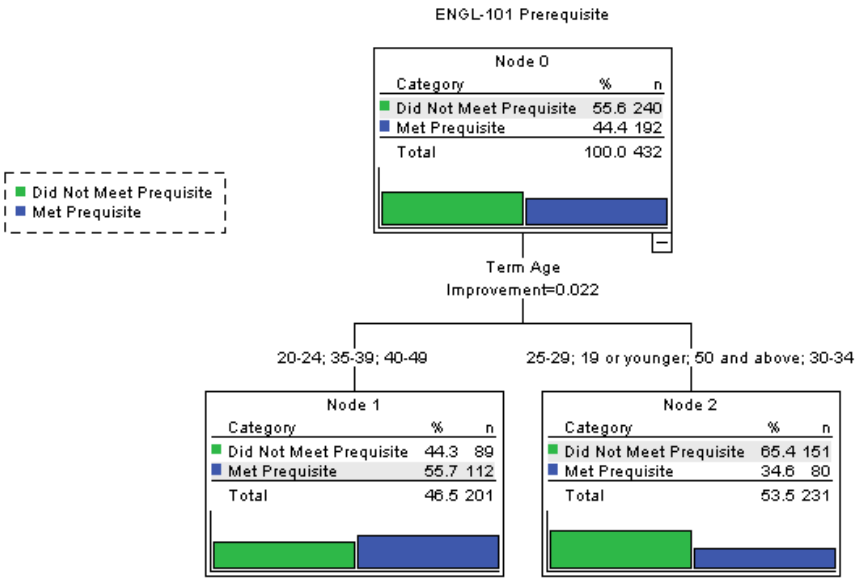
ENGL-101 as a Prerequisite to ANTHRO-102

Disproportionate Impact

The figure on the following page uses segmentation modeling to identify disproportionate impact when ENGL-101 was examined as a possible prerequisite for ANTHRO-102. Overall, 44% of students who entered ANTHRO-102 successfully completed the ENGL-101 prerequisite. However, 56% of student's age 20-24 and 35-49 years old who entered ANTHRO-102, successfully completed the ENGL-101 prerequisite. Conversely, only 35% of student's age 19 years old or younger, 25-34, and 50 years old or older who entered ANTHRO-102, successfully completed the ENGL-101 prerequisite. ***This finding, a 21% difference between segments, represents an observed disproportionate impact by age.***

Equally important is how the ENGL-101 prerequisite affects the ANTHRO-102 success rates of students in each segment. As the table on the following page indicates, the current success rate of students 20-24 and 35-49 years old is 70% while the success rate of students 19 years old or younger, 25-34, and 50 years old or older was 72%, a 2% differential. When students who met the ENGL-101 prerequisite were examined; 80% of students age 20-24 and 35-49 years old were successful and 91% of students 19 years old or younger, 25-34, and 50 years old or older were successful. ***Overall, the ANTHRO-102 success rates for both groups improved; an increase of 10% for those 20-24 and 35-49 years old and an increase of 19% for those 19 years old or younger, 25-34, and 50 years old or older. Furthermore, students in the disproportionately impacted segment (i.e. 19 years old or younger, 25-34, and 50 years old or older) demonstrated a higher ANTHRO-102 course success rate, 91% compared to 80% of the students not in the disproportionately impacted group.***

CART Segmentation Model Showing Disproportionate Impact When Prerequisite for ANTHRO-102 is ENGL-101 (Age, Gender, Ethnicity, & Disability examined)



***Risk Estimate = .391, SE of Risk Estimate = .023, Improvement set to .01, Child Node set to 5% of Total N, Parent Node is twice the Child Node.**

The Impact of ENGL-101 as a Prerequisite for ANTHRO-102 on the Two Age Categories Identified in the Disproportionate Impact Study

Node	Age	All Students	Students that Meet PreReq	Percent of All Students	Current Success Rate	New Success Rate
1	20-24, 35-39, and 40-49 year olds	201	112	55.7	69.7	79.5
2	19 or younger, 25-34, and 50 years old or older	231	80	34.6	71.9	91.3
	Total	432	192	44.4	70.8	84.4

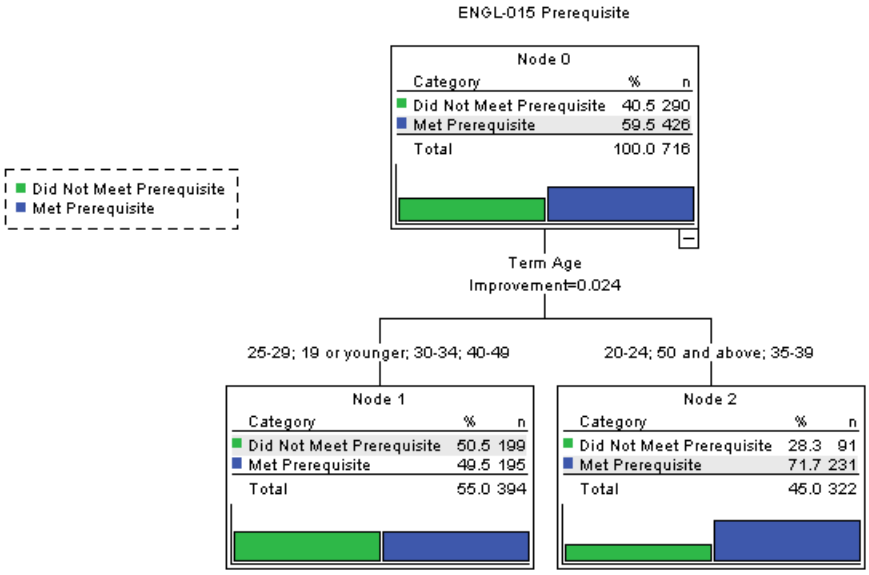
ENGL-015 as a Prerequisite to ART-100

Disproportionate Impact

The figure on the following page uses segmentation modeling to identify disproportionate impact when ENGL-015 was examined as a possible prerequisite for ART-100. Overall, 60% of students who entered ART-100 successfully completed the ENGL-015 prerequisite. However, only 50% of student's age 19 or younger, 25-34, and 40-49 who entered ART-100, successfully completed the ENGL-015 prerequisite. Conversely, 72% of student's age 20-24, 35-39, and 50 years old or older who entered ART-100, successfully completed the ENGL-015 prerequisite. ***This finding, a 22% difference between segments, represents an observed disproportionate impact by age.***

Equally important is how the ENGL-015 prerequisite affects the ART-100 success rates of students in each segment. As the table on the following page indicates, the current success rate of students 19 or younger, 25-34, and 40-49 years old is 75% while the success rate of students 20-24, 35-39, and 50 years old or older was 69%, a 6% differential. When students who met the ENGL-015 prerequisite were examined; 83% of students age 19 or younger, 25-34, and 40-49 years old were successful and 75% of students 20-24, 35-39, and 50 years old or older were successful***. Overall, the ART-100 success rates for both groups improved; an increase of 8% for those 19 or younger, 25-34, and 40-49 years old and an increase of 6% for those 20-24, 35-39, and 50 years old or older. Furthermore, students in the disproportionately impacted segment (i.e. 19 or younger, 25-34, and 40-49 years old) demonstrated a higher ART-100 course success rate, 83% compared to 75% of the students not in the disproportionately impacted group.***

CART Segmentation Model Showing Disproportionate Impact When Prerequisite for ART-100 is ENGL-015 (Age, Gender, Ethnicity, and Disability examined)



***Risk Estimate = .399, SE of Risk Estimate = .018, Improvement set to .01, Child Node set to 5% of Total N, Parent Node is twice the Child Node.**

The Impact of ENGL-015 as a Prerequisite for ART-100 on the Two Age Categories Identified in the Disproportionate Impact Study

Node	Age	All Students	Students that Meet PreReq	Percent of All Students	Current Success Rate	New Success Rate
1	19 or younger, 25-29, 30-34, 40-49	394	195	49.5	74.6	82.6
2	20-24, 35-39, 50 or older	322	231	71.7	68.9	74.9
	Total	716	426	59.5	72.1	78.4

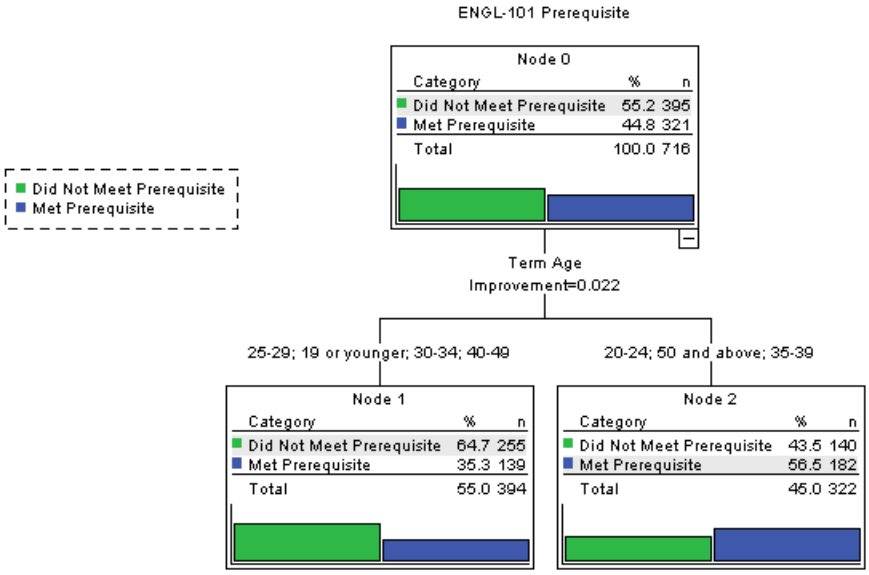
ENGL-101 as a Prerequisite to ART-100

Disproportionate Impact

The figure on the following page uses segmentation modeling to identify disproportionate impact when ENGL-101 was examined as a possible prerequisite for ART-100. Overall, 45% of students who entered ART-100 successfully completed the ENGL-101 prerequisite. However, only 35% of student's age 19 or younger, 25-34 and 40-49 years old who entered ART-100, successfully completed the ENGL-101 prerequisite. Conversely, 57% of student's age 20-24, 35-39, and 50 years old or older who entered ART-100, successfully completed the ENGL-101 prerequisite. ***This finding, a 22% difference between segments, represents an observed disproportionate impact by age.***

Equally important is how the ENGL-101 prerequisite affects the ART-100 success rates of students in each segment. As the table on the following page indicates, the current success rate of students 19 or younger, 25-34 and 40-49 years old is 75% while the success rate of students 20-24, 35-39, and 50 years old or older was 69%, a 6% differential. When students who met the ENGL-101 prerequisite were examined; 85% of students age 19 or younger, 25-34 and 40-49 years old were successful and 77% of students 20-24, 35-39, and 50 years old or older were successful. ***Overall, the ART-100 success rates for both groups improved; an increase of 10% for those 19 or younger, 25-34 and 40-49 years old and an increase of 8% for those 20-24, 35-39, and 50 years old or older. Furthermore, students in the disproportionately impacted segment (i.e. 19 or younger, 25-34 and 40-49 years old) demonstrated a higher ART-100 course success rate, 85% compared to 77% of the students not in the disproportionately impacted group.***

CART Segmentation Model Showing Disproportionate Impact When Prerequisite for ART-100 is ENGL-101 (Age, Gender, Ethnicity, and Disability examined)



***Risk Estimate = .390, SE of Risk Estimate = .018, Improvement set to .01, Child Node set to 5% of Total N, Parent Node is twice the Child Node.**

The Impact of ENGL-101 as a Prerequisite for ART-100 on the Two Age Categories Identified in the Disproportionate Impact Study

Node	Age	All Students	Students that Meet PreReq	Percent of All Students	Current Success Rate	New Success Rate
1	19 or younger, 25-29, 30-34, 40-49	394	139	35.3	74.6	84.9
2	20-24, 35-39, 50 or older	322	182	56.5	68.9	76.9
	Total	716	321	44.8	72.1	80.4

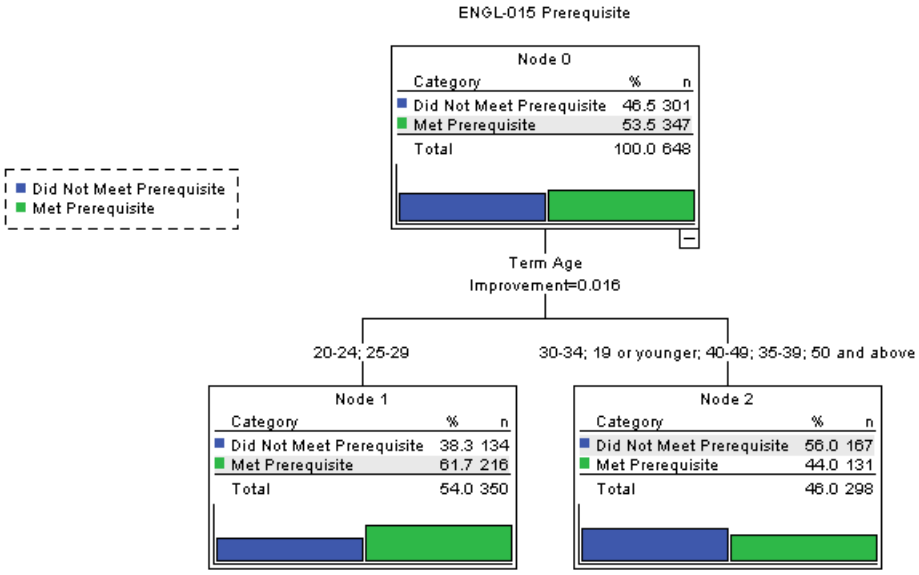
ENGL-015 as a Prerequisite to ART-102

Disproportionate Impact

The figure on the following page uses segmentation modeling to identify disproportionate impact when ENGL-015 was examined as a possible prerequisite for ART-102. Overall, 54% of students who entered ART-102 successfully completed the ENGL-015 prerequisite. However, 62% of student's age 20-29 who entered ART-102, successfully completed the ENGL-015 prerequisite. Conversely, only 44% of student's age 19 years old or younger and 30 years old or older who entered ART-102, successfully completed the ENGL-015 prerequisite. ***This finding, an 18% difference between segments, represents an observed disproportionate impact by age.***

Equally important is how the ENGL-015 prerequisite affects the ART-102 success rates of students in each segment. As the table on the following page indicates, the current success rate of students 20-29 years old is 68% while the success rate of students 19 years old or younger and 30 years old or older was 72%, a 4% differential. When students who met the ENGL-015 prerequisite were examined; 70% of student's age 20-29 years old were successful and 82% of students 19 years old or younger and 30 years old or older were successful***. Overall, the ART-102 success rates for both groups improved; an increase of 2% for those 20-29 years old and an increase of 10% for those 19 years old or younger and 30 years old or older. Furthermore, students in the disproportionately impacted segment (i.e. 19 years old or younger and 30 years old or older) demonstrated a higher ART-102 course success rate, 82% compared to 70% of the students not in the disproportionately impacted group.***

CART Segmentation Model Showing Disproportionate Impact When Prerequisite for ART-102 is ENGL-015 (Age, Gender, Ethnicity, and Disability examined)



***Risk Estimate = .409, SE of Risk Estimate = .019, Improvement set to .01, Child Node set to 5% of Total N, Parent Node is twice the Child Node.**

The Impact of ENGL-015 as a Prerequisite for ART-102 on the Two Age Categories Identified in the Disproportionate Impact Study

Node	Age	All Students	Students that Meet PreReq	Percent of All Students	Current Success Rate	New Success Rate
1	20-24, 25-29	350	216	61.7	67.7	70.4
2	19 or younger, 30-34, 35-39, 40-49, 50 or older	298	131	44.0	71.8	81.7
	Total	648	347	53.5	69.6	74.6

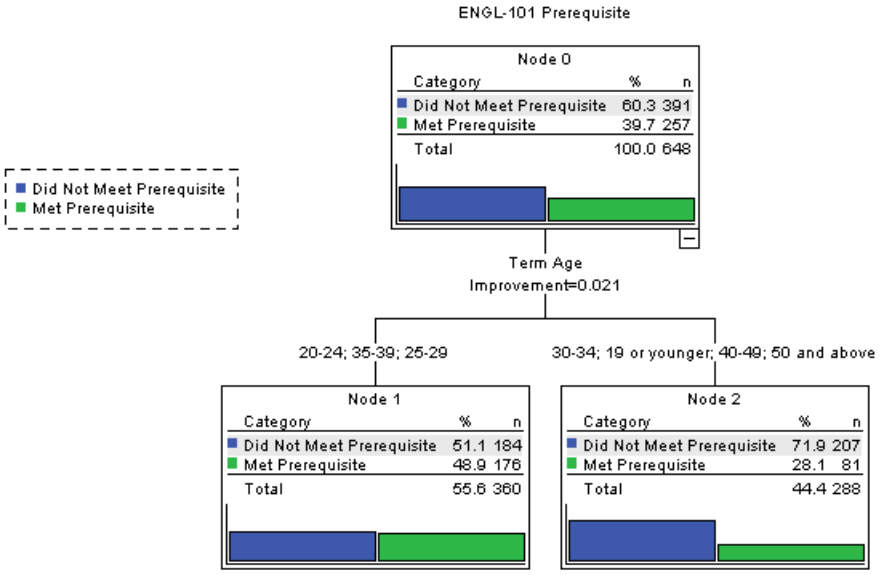
ENGL-101 as a Prerequisite to ART-102

Disproportionate Impact

The figure on the following page uses segmentation modeling to identify disproportionate impact when ENGL-101 was examined as a possible prerequisite for ART-102. Overall, 40% of students who entered ART-102 successfully completed the ENGL-101 prerequisite. However, 49% of student's age 20-29 and 35-39 who entered ART-102, successfully completed the ENGL-101 prerequisite. Conversely, only 28% of student's age 19 years old or younger, 30-34, and 40 years old or older who entered ART-102, successfully completed the ENGL-101 prerequisite. ***This finding, an 21% difference between segments, represents an observed disproportionate impact by age.***

Equally important is how the ENGL-101 prerequisite affects the ART-102 success rates of students in each segment. As the table on the following page indicates, the current success rate of students 20-29 and 35-39 years old is 68% while the success rate of students 19 years old or younger, 30-34, and 40 years old or older was 71%, a 3% differential. When students who met the ENGL-101 prerequisite were examined; 74% of student's age 20-29 and 35-39 years old were successful and 88% of students 19 years old or younger, 30-34, and 40 years old or older were successful***. Overall, the ART-102 success rates for both groups improved; an increase of 6% for those 20-29 and 35-39 years old and an increase of 17% for those 19 years old or younger, 30-34, and 40 years old or older. Furthermore, students in the disproportionately impacted segment (i.e. 19 years old or younger, 30-34, and 40 years old or older) demonstrated a higher ART-102 course success rate, 88% compared to 74% of the students not in the disproportionately impacted group.***

CART Segmentation Model Showing Disproportionate Impact When Prerequisite for ART-102 is ENGL-101 (Age, Gender, Ethnicity, and Disability examined)



***Risk Estimate = .397, SE of Risk Estimate = .019, Improvement set to .01, Child Node set to 5% of Total N, Parent Node is twice the Child Node.**

The Impact of ENGL-101 as a Prerequisite for ART-102 on the Two Age Categories Identified in the Disproportionate Impact Study

Node	Age	All Students	Students that Meet PreReq	Percent of All Students	Current Success Rate	New Success Rate
1	20-24, 25-29, 35-39	360	176	48.9	68.3	73.9
2	19 or younger, 30-34, 40-49, 50 or older	288	81	28.1	71.2	87.7
	Total	648	257	39.7	69.6	78.2

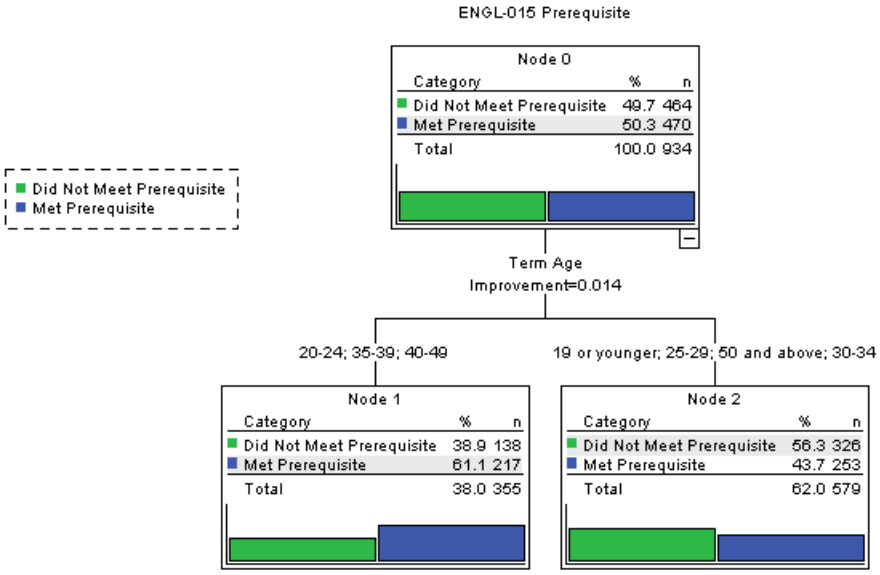
ENGL-015 as a Prerequisite to PHIL-101

Disproportionate Impact

The figure on the following page uses segmentation modeling to identify disproportionate impact when ENGL-015 was examined as a possible prerequisite for PHIL-101. Overall, 50% of students who entered PHIL-101 successfully completed the ENGL-015 prerequisite. However, 61% of student's age 20-24 and 35-49 who entered PHIL-101, successfully completed the ENGL-015 prerequisite. Conversely, only 44% of student's age 19 years old or younger, 25-34 and 50 years old or older who entered PHIL-101, successfully completed the ENGL-015 prerequisite. ***This finding, a 17% difference between segments, represents an observed disproportionate impact by age.***

Equally important is how the ENGL-015 prerequisite affects the PHIL-101 success rates of students in each segment. As the table on the following page indicates, the current success rate of students 20-24 and 35-49 years old is 67% while the success rate of students 19 years old or younger, 25-34 and 50 years old or older was 70%, a 3% differential. When students who met the ENGL-015 prerequisite were examined; 77% of student's age 20-24 and 35-49 years old were successful and 81% of students 19 years old or younger, 25-34 and 50 years old or older were successful***. Overall, the PHIL-101 success rates for both groups improved; an increase of 10% for those 20-24 and 35-49 years old and an increase of 11% for those 19 years old or younger, 25-34 and 50 years old or older. Furthermore, students in the disproportionately impacted segment (i.e. 19 years old or younger, 25-34 and 50 years old or older) demonstrated a higher PHIL-101 course success rate, 81% compared to 77% of the students not in the disproportionately impacted group.***

CART Segmentation Model Showing Disproportionate Impact When Prerequisite for PHIL-101 is ENGL-015 (Age, Gender, Ethnicity, and Disability examined)



***Risk Estimate = .419, SE of Risk Estimate = .016, Improvement set to .01, Child Node set to 5% of Total N, Parent Node is twice the Child Node.**

The Impact of ENGL-015 as a Prerequisite for PHIL-101 on the Two Age Categories Identified in the Disproportionate Impact Study

Node	Age	All Students	Students that Meet PreReq	Percent of All Students	Current Success Rate	New Success Rate
1	20-24, 35-39, 40-49	355	217	61.1	66.5	76.5
2	19 or younger, 25-29, 30-34, 50 or older	579	253	43.7	70.1	80.6
	Total	934	470	50.3	68.7	78.7

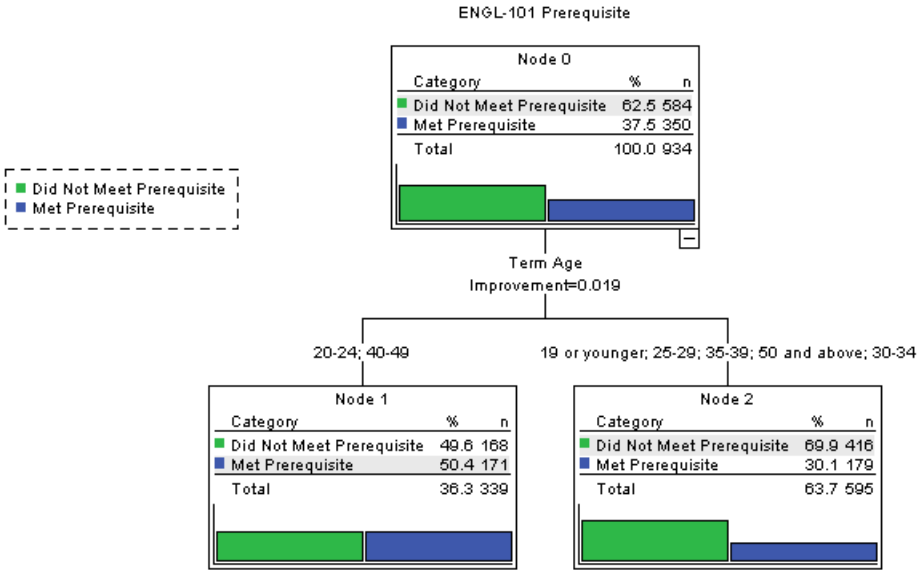
ENGL-101 as a Prerequisite to PHIL-101

Disproportionate Impact

The figure on the following page uses segmentation modeling to identify disproportionate impact when ENGL-101 was examined as a possible prerequisite for PHIL-101. Overall, 38% of students who entered PHIL-101 successfully completed the ENGL-101 prerequisite. However, 50% of student's age 20-24 and 40-49 who entered PHIL-101, successfully completed the ENGL-101 prerequisite. Conversely, only 30% of student's age 19 years old or younger, 25-39 and 50 years old or older who entered PHIL-101, successfully completed the ENGL-101 prerequisite. ***This finding, a 20% difference between segments, represents an observed disproportionate impact by age.***

Equally important is how the ENGL-101 prerequisite affects the PHIL-101 success rates of students in each segment. As the table on the following page indicates, the current success rate of students 20-24 and 40-49 years old is 67% while the success rate of students 19 years old or younger, 25-39 and 50 years old or older was 70%, a 3% differential. When students who met the ENGL-101 prerequisite were examined; 78% of student's age 20-24 and 40-49 years old were successful and 82% of students 19 years old or younger, 25-39 and 50 years old or older were successful***. Overall, the PHIL-101 success rates for both groups improved; an increase of 11% for those 20-24 and 40-49 years old and an increase of 12% for those 19 years old or younger, 25-39 and 50 years old or older. Furthermore, students in the disproportionately impacted segment (i.e. 19 years old or younger, 25-39 and 50 years old or older) demonstrated a higher PHIL-101 course success rate, 82% compared to 78% of the students not in the disproportionately impacted group.***

CART Segmentation Model Showing Disproportionate Impact When Prerequisite for PHIL-101 is ENGL-101 (Age, Gender, Ethnicity, and Disability examined)



***Risk Estimate = .372, SE of Risk Estimate = .016, Improvement set to .01, Child Node set to 5% of Total N, Parent Node is twice the Child Node.**

The Impact of ENGL-101 as a Prerequisite for PHIL-101 on the Two Age Categories Identified in the Disproportionate Impact Study

Node	Age	All Students	Students that Meet PreReq	Percent of All Students	Current Success Rate	New Success Rate
1	20-24, 40-49	339	171	50.4	67.0	78.4
2	19 or younger, 25-29, 30-34, 35-39, 50 or older	595	179	30.1	69.7	81.6
	Total	934	350	37.5	68.7	80.0

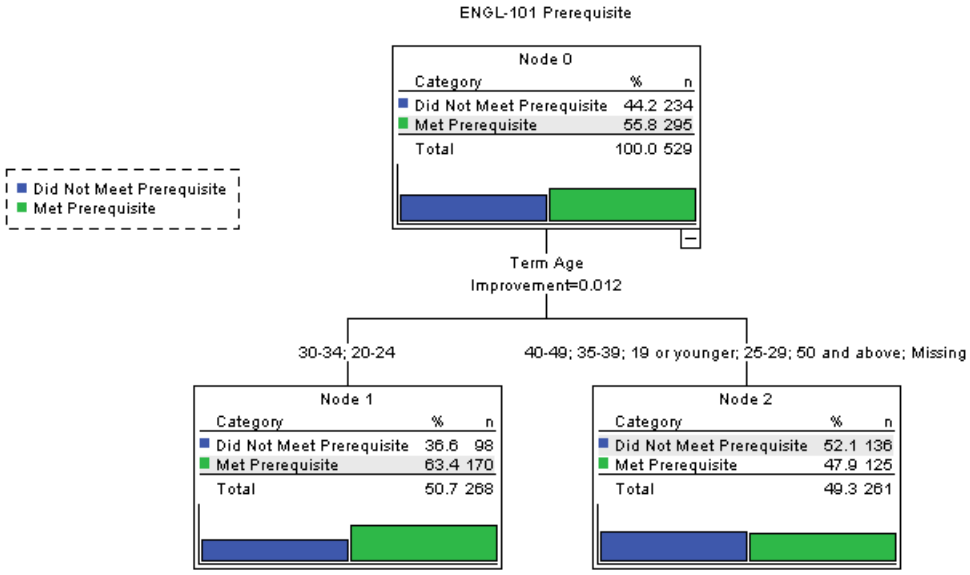
ENGL-101 as a Prerequisite to PHIL-103

Disproportionate Impact

The figure on the following page uses segmentation modeling to identify disproportionate impact when ENGL-101 was examined as a possible prerequisite for PHIL-103. Overall, 56% of students who entered PHIL-103 successfully completed the ENGL-101 prerequisite. However, 63% of student's age 20-24 and 30-34 who entered PHIL-103, successfully completed the ENGL-101 prerequisite. Conversely, only 48% of student's age 19 years old or younger, 25-29 and 35 years old or older who entered PHIL-103, successfully completed the ENGL-101 prerequisite. ***This finding, a 15% difference between segments, represents an observed disproportionate impact by age.***

Equally important is how the ENGL-101 prerequisite affects the PHIL-103 success rates of students in each segment. As the table on the following page indicates, the current success rate of students 20-24 and 30-34 years old is 78% while the success rate of students 19 years old or younger, 25-29 and 35 years old or older was 77%, a 1% differential. When students who met the ENGL-101 prerequisite were examined; 79% of student's age 20-24 and 30-34 years old were successful and 80% of students 19 years old or younger, 25-29 and 35 years old or older were successful***. Overall, the PHIL-103 success rates for both groups improved; an increase of 2% for those 20-24 and 30-34 years old and an increase of 3% for those 19 years old or younger, 25-29 and 35 years old or older. Furthermore, students in the disproportionately impacted segment (i.e. 19 years old or younger, 25-29 and 35 years old or older) demonstrated a higher PHIL-103 course success rate, 80% compared to 79% of the students not in the disproportionately impacted group.***

CART Segmentation Model Showing Disproportionate Impact When Prerequisite for PHIL-103 is ENGL-101 (Age, Gender, Ethnicity, and Disability examined)



***Risk Estimate = .422, SE of Risk Estimate = .021, Improvement set to .01, Child Node set to 5% of Total N, Parent Node is twice the Child Node.**

The Impact of ENGL-101 as a Prerequisite for PHIL-103 on the Two Age Categories Identified in the Disproportionate Impact Study

Node	Age	All Students	Students that Meet PreReq	Percent of All Students	Current Success Rate	New Success Rate
1	20-24, 30-34	268	170	63.4	77.6	79.4
2	19 or younger, 25-29, 35-39, 40-49, 50 or older, Missing	261	125	47.9	76.9	80.0
	Total	529	295	55.8	77.3	79.7

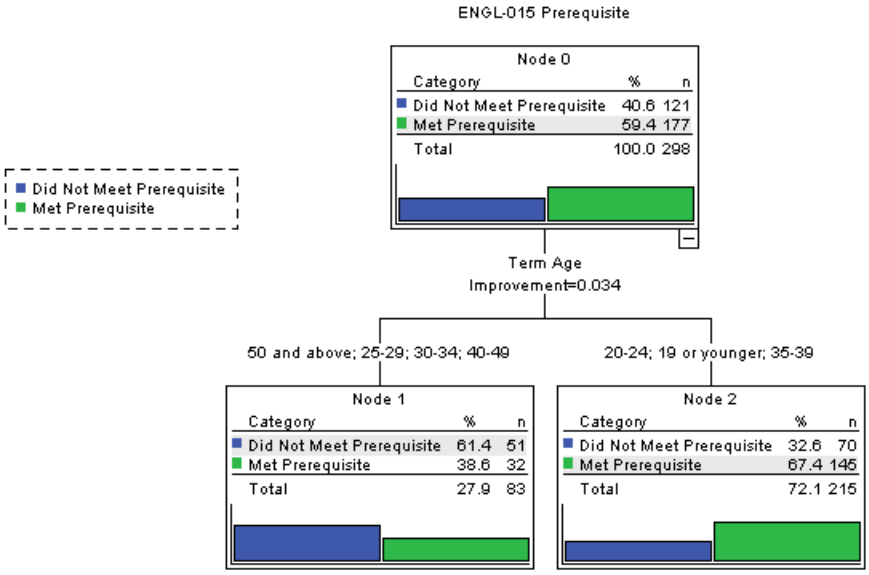
ENGL-015 as a Prerequisite to SPEECH-125

Disproportionate Impact

The figure on the following page uses segmentation modeling to identify disproportionate impact when ENGL-015 was examined as a possible prerequisite for SPEECH-125. Overall, 59% of students who entered SPEECH-125 successfully completed the ENGL-015 prerequisite. However, only 39% of student's age 25-34 and 40 years old or older who entered SPEECH-125; successfully completed the ENGL-015 prerequisite. Conversely, 67% of student's age 19 years old or younger, 20-24 and 35-39 years old who entered SPEECH-125, successfully completed the ENGL-015 prerequisite. ***This finding, a 28% difference between segments, represents an observed disproportionate impact by age.***

Equally important is how the ENGL-015 prerequisite affects the SPEECH-125 success rates of students in each segment. As the table on the following page indicates, the current success rate of students 25-34 and 40 years old or older is 66% while the success rate of students 19 years old or younger, 20-24 and 35-39 years old was 70%, a 4% differential. When students who met the ENGL-015 prerequisite were examined; 69% of student's age 25-34 and 40 years old or older were successful and 76% of students 19 years old or younger, 20-24 and 35-39 years old were successful***. Overall, the SPEECH-125 success rates for both groups improved; an increase of 3% for those 25-34 and 40 years old or older and an increase of 6% for those 19 years old or younger, 20-24 and 35-39 years old.***

CART Segmentation Model Showing Disproportionate Impact When Prerequisite for SPEECH-125 is ENGL-015 (Age, Gender, Ethnicity, and Disability examined)



***Risk Estimate = .342, SE of Risk Estimate = .027, Improvement set to .01, Child Node set to 5% of Total N, Parent Node is twice the Child Node.**

The Impact of ENGL-015 as a Prerequisite for SPEECH-125 on the Two Age Categories Identified in the Disproportionate Impact Study

Node	Age	All Students	Students that Meet PreReq	Percent of All Students	Current Success Rate	New Success Rate
1	25-29, 30-34, 40-49, 50 or older	83	32	38.6	66.3	68.8
2	19 or younger, 20-24, 35-39	215	145	67.4	70.2	75.9
	Total	298	177	59.4	69.1	74.6

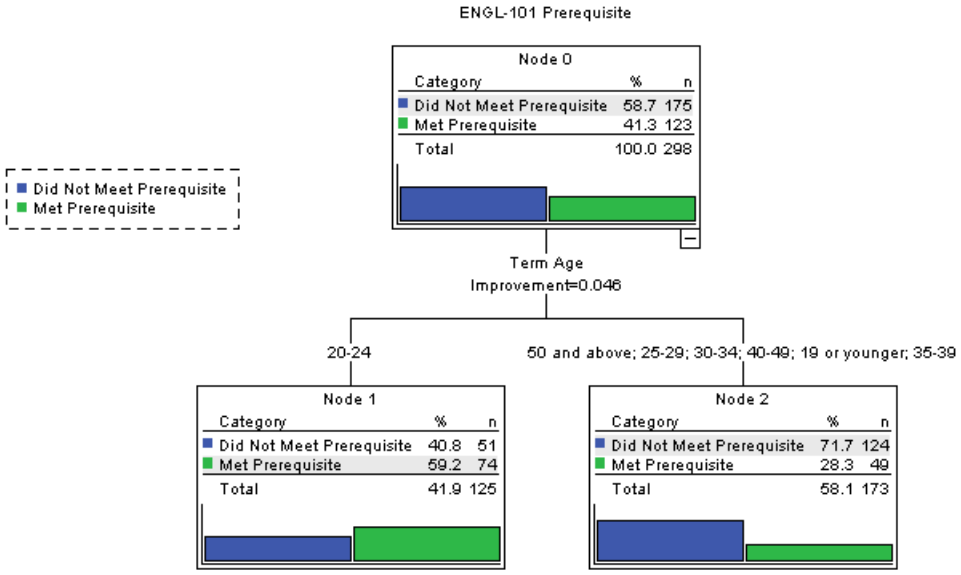
ENGL-101 as a Prerequisite to SPEECH-125

Disproportionate Impact

The figure on the following page uses segmentation modeling to identify disproportionate impact when ENGL-101 was examined as a possible prerequisite for SPEECH-125. Overall, 41% of students who entered SPEECH-125 successfully completed the ENGL-101 prerequisite. However, 59% of student's age 20-24 who entered SPEECH-125, successfully completed the ENGL-101 prerequisite. Conversely, only 28% of student's age 19 years old or younger and 25 years old or older who entered SPEECH-125, successfully completed the ENGL-101 prerequisite. ***This finding, a 31% difference between segments, represents an observed disproportionate impact by age.***

Equally important is how the ENGL-101 prerequisite affects the SPEECH-125 success rates of students in each segment. As the table on the following page indicates, the current success rate of students 20-24 years old is 76% while the success rate of students 19 years old or younger and 25 years old or older was 64%, a 12% differential. When students who met the ENGL-101 prerequisite were examined; 84% of student's age 20-24 were successful and 78% of students 19 years old or younger and 25 years old or older were successful***. Overall, the SPEECH-125 success rates for both groups improved; an increase of 8% for those 20-24 years old and an increase of 14% for those 19 years old or younger and 25 years old or older. Furthermore, students in the disproportionately impacted segment (i.e. 19 years old or younger, 25-29 and 35 years old or older) demonstrated a higher increase in the SPEECH-125 course success rate, 14% compared to 8% of the students not in the disproportionately impacted group. In addition, the success rate gap between students in the disproportionately impacted groups was reduced from 12% (76%-64% = 12%) to 6% (84% - 78% = 6%).***

CART Segmentation Model Showing Disproportionate Impact When Prerequisite for SPEECH-125 is ENGL-101 (Age, Gender, Ethnicity, and Disability examined)



***Risk Estimate = .336, SE of Risk Estimate = .027, Improvement set to .01, Child Node set to 5% of Total N, Parent Node is twice the Child Node.**

The Impact of ENGL-101 as a Prerequisite for SPEECH-125 on the Two Age Categories Identified in the Disproportionate Impact Study

Node	Age	All Students	Students that Meet PreReq	Percent of All Students	Current Success Rate	New Success Rate
1	20-24	125	74	59.2	76.0	83.8
2	19 or younger, 25-29, 35-39, 30-34, 35-39, 40-49, 50 or older	173	49	28.3	64.2	77.6
	Total	298	123	41.3	69.1	81.3

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Young, J., & Kobrin, J. (2001). *Differential validity, differential prediction, and college admission testing: A comprehensive review and analysis*. College Entrance Examination Board, New York, http://www.collegeboard.com/research/pdf/differential_validity_10539.pdf.