

Critical Courses among Computer Technology Students

Nova Southeastern University
Office of Institutional Effectiveness

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NSU Overview

- 24,148 Students
- 10th Largest private non-profit
- Over 164,000 alumni
- Doctoral High Research and Community Engaged Carnegie Classification
- Degrees Offered
 - Associate
 - Bachelor's
 - Master's
 - Specialist
 - Doctoral
 - Professional



NSU Overview

- 18 Colleges, Schools, and Centers
- Fort Lauderdale, FL
- Regional Campuses
 - Fort Myers, FL
 - Jacksonville, FL
 - Miami, FL
 - Miramar, FL
 - Orlando, FL
 - Palm Beach, FL
 - Tampa, FL
 - San Juan, PR



Introduction

In 2013, NSU was awarded a Title V grant to, “develop programs and services to better meet the needs of students pursuing high-demand science, technology, engineering, and math (STEM) related programs and careers...”.

The cooperative grant focuses primarily on students majoring in computer science fields.

IE’s role is to support the grant by identifying trends that impact this student population.

Computer Technology Critical Courses

Objectives

- Find courses with highest enrollment and failure rates among Computer Technology (CT) students
- Courses with high enrollment and high failure rates are critical courses

Who are CT Students?

Computer Technology students are bachelor degree-seeking students, enrolled part-time and full-time, who have declared their major as one of the following:

- Computer Engineering
- Computer Information Systems
- Computer Science
- Information Technology
- Software Engineering

Steps

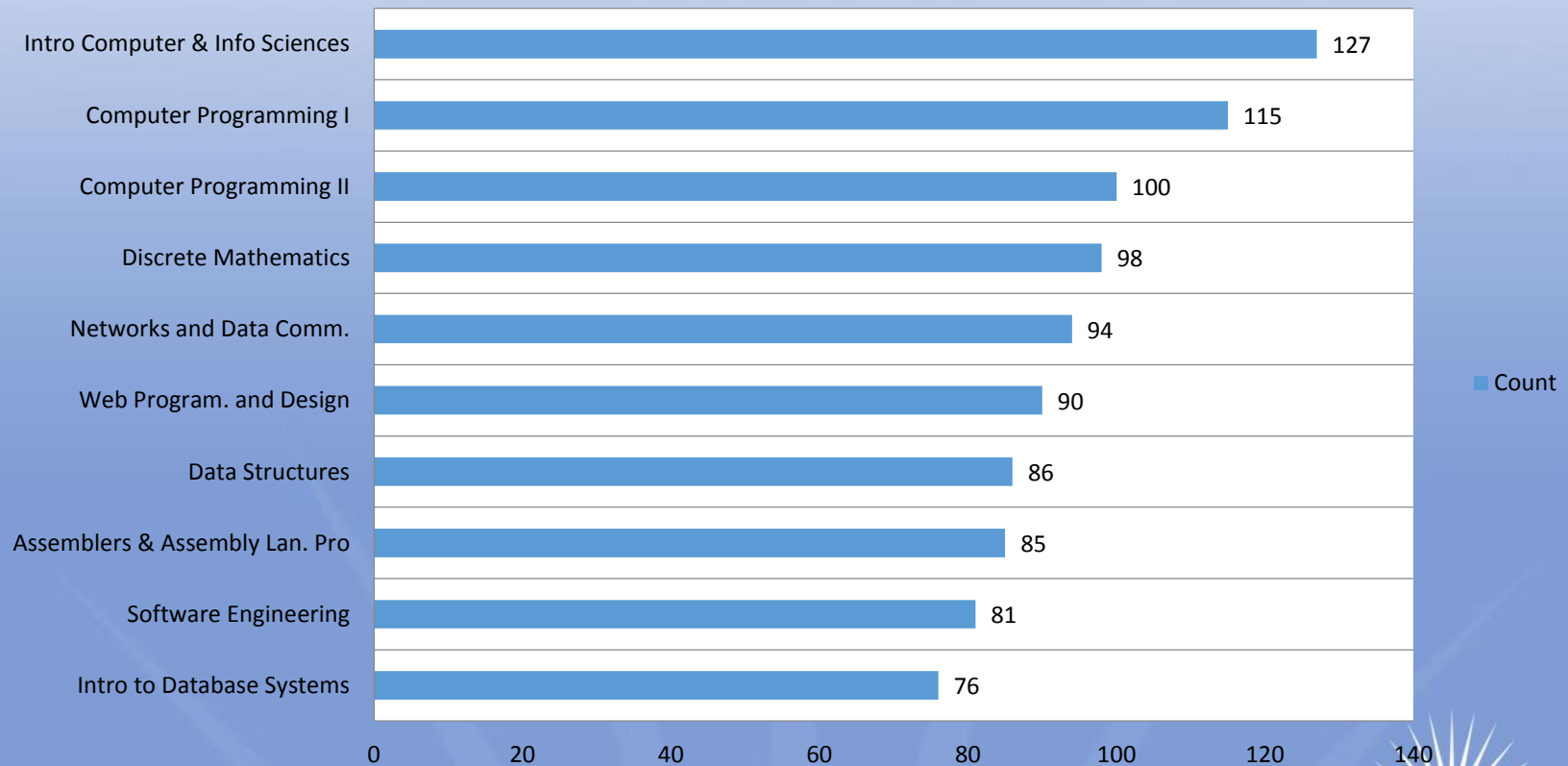
1. Fall enrollment files were used to establish the fall 2011, 2012, and 2013 Computer Technology student groups.
2. Course enrollment reports for fall and winter terms were pulled for each group. Reports included final grades.
3. Courses were ranked by enrollment per student group (fall and winter terms combined).
4. Fail rates were generated for high enrollment courses (fall and winter terms combined).
5. Pass grades equal to all grades C- and above.

CT Student Fall Enrollment

- Fall 2011 = 175 students
- Fall 2012 = 173 students
- Fall 2013 = 147 students

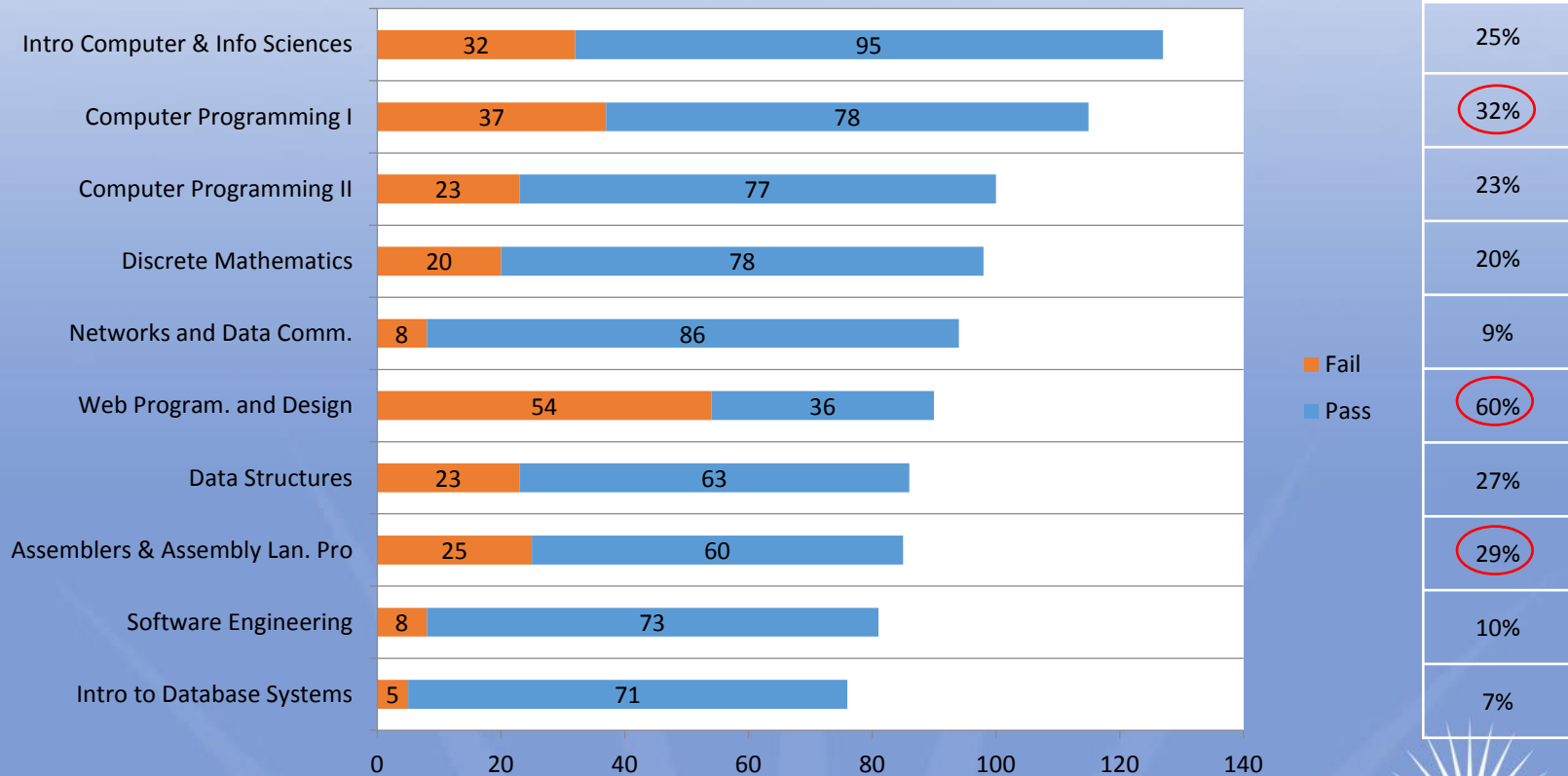
CT Courses per Enrollment

Fall 2011-Winter 2014



CT Courses Pass/Fail Outcome

Fall 2011-Winter 2014

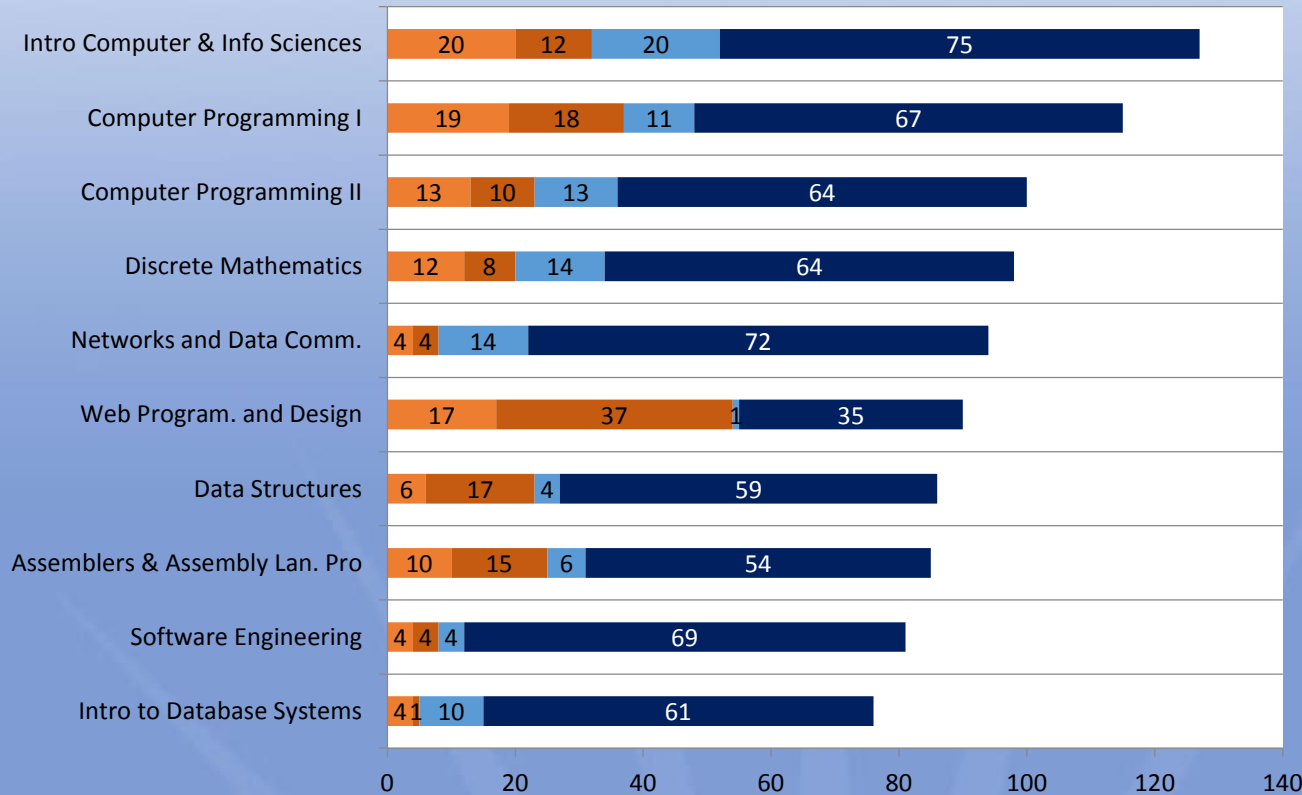


How Critical Courses were Chosen

- Courses having highest enrollment
- Courses having high fail rates

CT Courses Pass/Fail and Retention

Fall 2011-Winter 2014



F-NR	P-NR
63%	21%
51%	14%
57%	17%
60%	18%
50%	16%
31%	3%
26%	6%
40%	10%
50%	5%
80%	14%

Computer Technology Critical Courses

- Computer Programming I (CSIS 2100)
- Web Programming and Design (CSIS 3020)
- Assemblers & Assembly Language Programming (CSIS 3050)
 - ✓ At least 85 students enrolled
 - ✓ Fail rate above 29%
 - ✓ Fail-not-retained rate above 31%

Course Pairings

Assemblers & Assembly Language Programming (CSIS 3050) and Web Programming and Design (CSIS 3020) were chosen to find the proportion of students who passed and/or failed both or a combination of courses and the impact on next-year retention.

Findings for CSIS 3050 and CSIS 3020

- 19 unique students had taken both courses over the course of a year
 - 26% passed both; 100% retained (n=5)
 - 68% failed one; 97% retained (n=12)
 - 5% failed both; 50% retained (n=2)

Course Pairings

Assemblers & Assembly Language Programming (CSIS 3050) and Computer Programming I (CSIS 2100) were chosen to find the proportion of students who passed and/or failed both or a combination of courses and the impact on next-year retention.

Findings for CSIS 3050 and CSIS 2100

- 24 unique students had taken both courses over the course of a year
 - 70% passed both; 94% retained (n=17)
 - 17% failed one; 75% retained (n=4)
 - 13% failed both; 100% retained (n=3)

Conclusion

- Students who passed at least one critical course were most likely to retain of all groups.
- Pre-requisite course performance may provide more insight into CT student retention (e.g., Introduction to Computers and Information Sciences, and Discrete Mathematics).
- Course pairing analysis may assist intentional programs funded by the grant.