# Predictive Evidence of Post-Secondary College Readiness for Mathematics

## Predictive Indicators

### Marginally prepared for:

- **Finite Math** (IUPUC: M118; Ivy Tech: 135)
- **College Algebra** (IUPUC: M153; Ivy Tech: 136)

### Prepared for:

- **Finite Math** (IUPUC: M118; Ivy Tech: 135)
- **College Algebra** (IUPUC: M153; Ivy Tech: 136)

### Marginally prepared for Calculus

- Prepared for Calculus

### Prepared for Calculus:

- Sophisticated success with a variety of assessment methods including multiple choice, short answer, essay, projects
- Views HW as means to learn material
- Extra Credit completed in the form of independent study – potentially for additional HS credits

## Assessment Exposure and Expectations

**(adaptability)**

- Success with a variety of assessment methods including multiple choice, short answer, essay, projects
- Depends on HW to improve grade
  - Viewed as chore
- Relies upon Test/quiz ‘do over’
- Expects Extra Credit in order to succeed

- Above Average success with a variety of assessment methods including multiple choice, short answer, essay, projects
- Views HW as means to learn material
- Uses Extra Credit as opportunity to learn (does not expect Extra Credit)

## Technology Skills

- Success with use of an electronic learning management system
- Knowledge/use of a scientific calculator and/or graphing calculator but NOT dependent upon for basic arithmetic and used minimally for fractional operations

- Working knowledge of an electronic learning management system
- Knowledge/use of applications of a scientific calculator and graphing calculator NOT used for basic arithmetic and fractional operations

- Sophisticated knowledge/use of electronic learning management system
- Sophisticated application and use of a graphing calculator used for graph analysis and NOT basic arithmetic including fractional operations

## Student Work Attitudes

**(observable on a consistent basis)**

- Student Goal to earn ‘C+’
- Awareness of the sequential learning nature of mathematical topics
- Awareness of importance of final exam result as performance indicator
- Parent/other advocates for student
- Some willingness to adapt to learning environment not compatible with student learning style
- Attendance viewed as necessary to success in course

- Student Goal to earn ‘B+’
- Above Average awareness of the sequential learning nature of mathematical topics
- Above Average awareness of importance of final exam result as performance indicator
- Learning to self-advocate
- Willing to adapt to learning environment not compatible with student learning style
- Attendance viewed as important to success in course

- Student Goal to earn ‘A’
- Sophisticated awareness of the sequential learning nature of mathematical topics
- Sophisticated awareness of importance of final exam result as performance indicator
- Able to self-advocate
- Thrives in a learning environment not compatible with student learning style
- Attendance viewed as critical to success in course

## Student Work Habits

- Completes 75% of work
- Teacher motivated
- Struggles with time management; meets some deadlines
- Seeks needed information possibly with prompting
- Copies teacher notes only; inconsistently maintains notebook
- Usually comes with needed supplies

- Completes 85% of work
- Self-motivated
- Effective and consistent time management; meets deadlines
- Seeks needed information without prompting
- Expands upon teacher notes in consistently maintained notebook
- Comes with needed supplies

- Completes 100% of work
- Self-motivated
- Effective and consistent time management; works ahead of deadlines
- Anticipates needed information
- Expands upon teacher notes with personal commentary in consistently maintained notebook
- Comes with needed supplies and backups

## Cognitive Understanding

**(Bloom's taxonomy)**

- Knowledge of facts and some understanding
- Asks operational ‘how to…’ questions

- Knowledge of facts, understanding and application
- Asks ‘when and why’ questions

- Knowledge of facts, understanding, application, analysis and synthesis
- Asks ‘what if…’ questions
Parents, students, educators and guidance counselors are encouraged to use the attached rubric (guideline) to help identify students who are ‘marginally prepared’ or ‘prepared’ for college credit bearing courses in mathematics upon entry to college immediately following high school graduation. Freshman college credit bearing courses in mathematics include Finite Mathematics, College Algebra (not to be confused with Algebra I or Algebra II taught in high school) and Calculus. The spirit of this rubric is to highlight ideal student behaviors in mathematics at the high school level that ensure college readiness (i.e. to avoid remediation at the college level and therefore to reduce potential high costs to stakeholders).

The rubric cross compares:

- **Success Level**
  - Marginally Prepared
  - Prepared

- **Predictive Indicators**
  - Assessment Exposure and Expectations (adaptability)
  - Technology Skills
  - Student Work Attitudes
  - Student Work Habits
  - Cognitive Understanding (Bloom’s taxonomy)

The ‘Marginally Prepared’ column identifies a student who is marginally prepared for Finite Math or College Algebra and may need remediation at the college level. The next column is subdivided to recognize two different college course paths. Students who are ‘prepared’ for Finite Math or College Algebra may only be ‘marginally prepared’ for Calculus. The last column identifies students who are prepared for Calculus.

The ‘Predictive Indicators’ may be student behavior categories that are observable as early as middle school. Students at a young age have much room to mature and grow in the academic setting. This document should only be used as a guideline to highlight ideal student behaviors.