

Final Report

2014-2015

*to the UNC General Administration
from the NC EMPT Program Advisory Committee*

PREPARED BY:

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NC EMPT Project Summary 2014-2015



Sharing the Good News About NC Early Mathematics Placement Testing!

A resurgence in NC EMPT high school student participation numbers during 2014-2015 was initiated in part by strong and widespread promotion of its early intervention services. Participation rose a healthy 27% compared to 2013-14, and nearly 39,000 students from public and non-public high schools statewide were served! Although teachers of Algebra II, Math III, and all fourth-year math courses were encouraged via email, mailings, and face-to-face presentations to afford their students the NC EMPT opportunity, much attention was paid to the newly offered “Essentials for College Math.” This course was designed by the Southern Regional Education Board (SREB) to help students whose mathematical abilities were deemed not quite ready for college-level mathematics. With a bold set of teaching and learning strategies and a curriculum that emphasizes real world problem solving, the Essentials class hopes to give its students the confidence and skills needed for successful college entrance into a beginning mathematics course. This is another perfect audience for NC EMPT! The associate director toured the state and introduced the benefits of the NC EMPT Program to teachers preparing to teach the Essentials class, as well as other fourth math courses. In the photo above, (l to r) teachers Angela Leonard, Davie County High; Joy Howard, Davie County High; Kelly

Dilday, Clayton High; Chris Sherrill, North Buncombe High; and presenter Kim Goff (at table), SREB math consultant, gather to display their NC EMPT tote bags in North Wilkesboro, NC, at a SREB Math Ready Training in late July 2015.

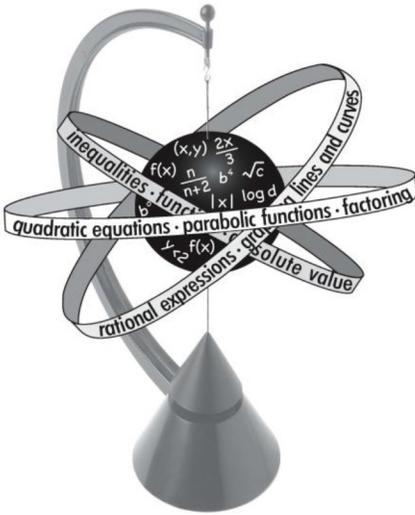
In its eighteenth year, NC EMPT remains steady in its quest to provide non-threatening and eye-opening advice to high school students with college and career plans. By allowing students to experience a “practice” mathematics placement test that is a facsimile of the actual tests given at NC community colleges and UNC institutions, NC EMPT offers a snapshot of current readiness. Most importantly, individualized results are received while there is time and motivation to strengthen and maintain mathematics skills necessary for success at the college-level. In addition, a wealth of personalized information is given to participants regarding the required mathematics courses for the major of their choice and a description of the mathematics placement procedure currently used at the college or university of their choice. Scores are confidential and will not be shared or compared.

Remarkably, these valuable NC EMPT services are provided free-of-charge to public and non-public high schools and students. Participation is voluntary and efforts to register for any or all of four testing windows annually are spearheaded by teachers. Despite great competition for classroom time and another harsh winter that consumed many instructional days, 665 teachers empowered 38,903 students during the 2014-2015 year to help better prepare for college-level mathematics. See the “NC EMPT Quick Stats” that follows for additional information.

The program appreciates strong support from the State of North Carolina, the UNC General Administration, and East Carolina University (ECU). Housed at ECU and organized under the Harriot College of Arts and Sciences, NC EMPT continues to thrive and serve the entire state. Early intervention is an important key in reducing the percentage of incoming college freshmen that require mathematics remediation. NC EMPT embraces the fact that immediate and professional feedback has the most effective impact for students, parents, and teachers. Turnaround time for test results is the quickest in our history and remains 0.8 days!

NC EMPT has now served nearly 680,000 students since its inception in 1996. The program has stayed abreast and communicated to high schools the myriad of changes in high school mathematics curriculum, mathematics admissions requirements at NC community colleges and UNC institutions, and beginning mathematics course requirements for a variety of majors at these colleges/universities. **NC EMPT serves as a crucial bridge connecting high school and college-level mathematics, particularly as students apprehensively step from grades 12 to 13.**

Update: August 2015

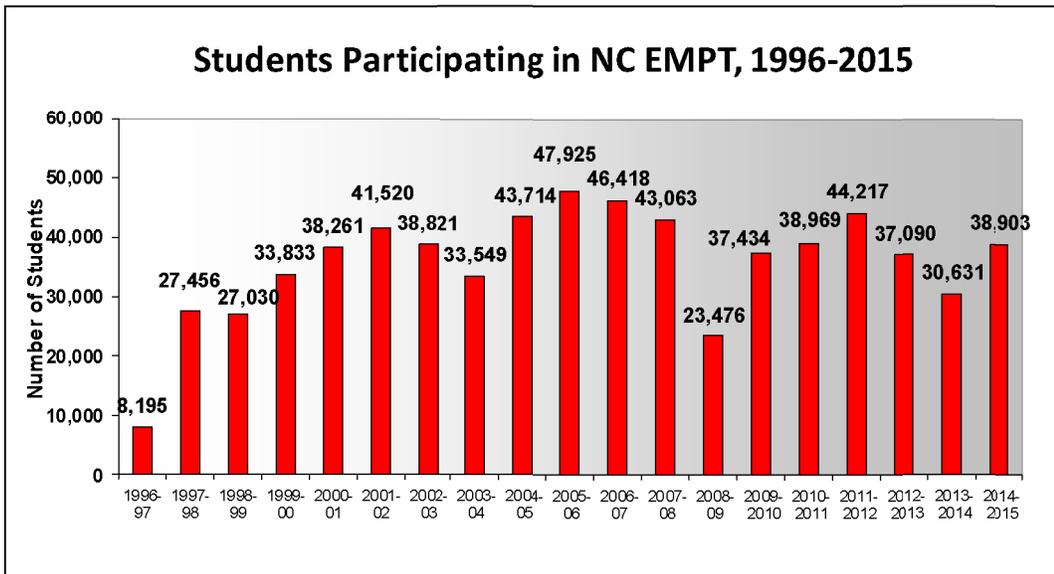


NC EMPT Quick Stats

What is NC EMPT? The NC Early Mathematics Placement Testing Program provides high school students with a non-threatening, eye-opening, reality check of their readiness for college-level mathematics. It is remarkably a **FREE** service to high schools and students, and is sponsored by the State of North Carolina.



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* Note that testing during 2008-2009 occurred only during the second half of the school year.

High School Math Teachers
 Participating in
 NC EMPT during
 2014-15:

667

NC EMPT
 has now served
> 681,000
 students statewide!!

Grade Level of Participating Students, 2014-2015

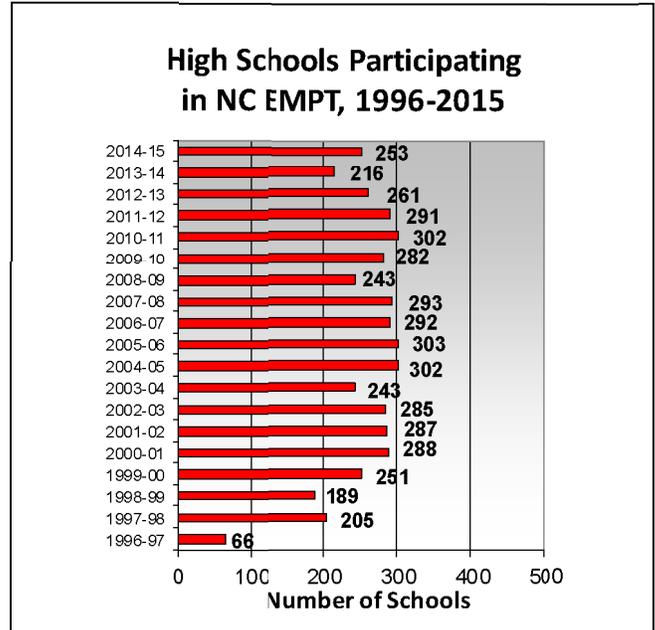
40% seniors 36% juniors
 20% sophomores 3% freshmen
 2% did not respond

FAST FEEDBACK!

Average turnaround time for the return of test results to 38,903 students last year

0.8 days – our *quickest* speed continues!!

NC EMPT has been continuously directed by faculty and staff at East Carolina University since the program's inception.



NC EMPT Participation S-T-R-E-T-C-H-E-S Across ALL of North Carolina!



Registration and participation in NC EMPT is still **free-of-charge** to all public and non-public high schools and their students!

Register now at <http://www.ncempt.org> for the 2015-2016 year for any or all of four testing windows!

Each pushpin in the state map to the left represents a participating high school during 2014-2015.

Did you know that the NC EMPT Web site has a wealth of information about mathematics placement testing at colleges and universities statewide?! CHECK IT OUT: www.ncempt.org



WHO should take the valuable practice math placement test offered by NC EMPT?

High school students enrolled in:

- Algebra II
- Math III
- Essentials for College Math
- Advanced Functions and Modeling
- Precalculus
- Discrete Math
- Statistics
- and other upper-level mathematics courses.



A Survey of 2014-2015

Participating Teachers Found...

- ♥ **98%** strongly agreed or agreed that the NC EMPT office promptly returned hard copies of test score summaries for teachers and individualized results letters for students.
- ♥ **98%** strongly agreed or agreed that the NC EMPT Program accomplished its goal of providing their participating high school students with a "reality check" of readiness for college-level mathematics.
- ♥ **99%** strongly agreed or agreed that the testing instructions provided for each teacher were clear and easy to follow.
- ♥ **99%** strongly agreed or agreed that **OVERALL** the **NC EMPT Program provides a VALUABLE SERVICE** to high school students and teachers.

EYE-OPENING
information
that benefits
everyone!

Reasons why high school students and their parents like NC EMPT:

- It is a reality check of current readiness for college-level mathematics.
- It helps students understand what skills must be improved so the appropriate degree-counting math course(s) can be taken and passed in college.
- It provides eye-opening information about the actual mathematics placement procedure and required math course(s) for the major and institution of their choice.

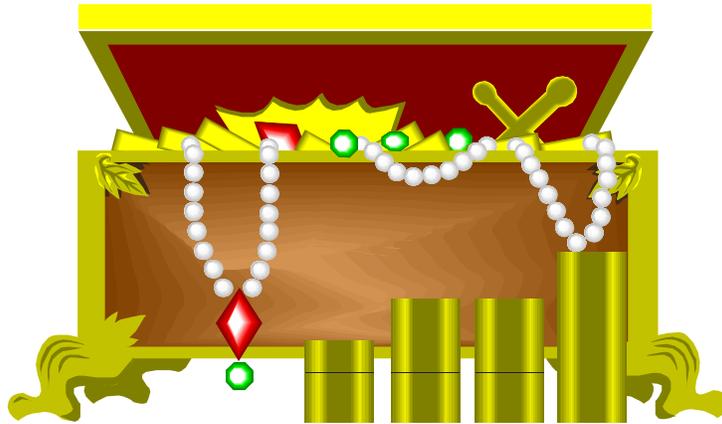
Reasons why high school math teachers and administrators like NC EMPT:

- It is excellent preparation for college-bound students.
- It is a non-threatening, up-to-date, "practice" math placement test with all materials provided FREE. Test administration is easy and feedback immediate.
- It offers current information about expectations and requirements in mathematics curriculum for fifty-eight community colleges and fifteen UNC institutions.

Note: NC EMPT results are quickly returned to students and teachers ONLY! Results will NOT be shared or compared!

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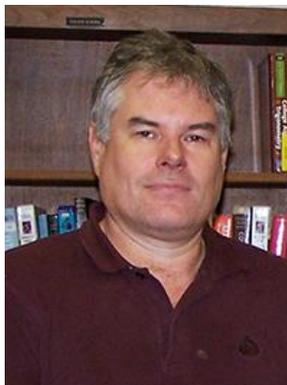
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**North Carolina Early Mathematics
Placement Testing -
A Treasure Chest of Mathematical
Advice for the College-Bound!**

I. From the Director

Dr. Johannes Hattingh, September 2015



The major goal of the NC EMPT Program is to help reduce the percentage of incoming college freshmen requiring mathematics remediation. The program provides non-threatening and eye-opening advice at an opportune time – while there is time and motivation to strengthen and maintain mathematics skills necessary for success at the college-level. By allowing students to experience a “practice” mathematics placement test that is a facsimile of the actual tests given at NC community colleges and UNC institutions, NC EMPT offers a snapshot of current readiness.

In addition, a wealth of personalized information is given to each participant regarding the required math courses for the major of their choice and a description of the math placement procedure currently used at the college or university of their choice. Scores are confidential and will not be shared or compared.

During the 2014-15 school year, approximately 39,000 participated in NC EMPT testing, which represented an increase of 27% as compared to the 2013-14 year. The newly offered "Essentials for College Math" provided an excellent opportunity for NC EMPT to reach out to the teachers of college-bound students needing a bridge course in mathematics.

Since its inception in 1997, NC EMPT has become the longest running and largest EMPT program in the nation. This success is due in part to the outstanding support and cooperation of everyone involved in the program, including the administrations at UNC General Administration and East Carolina University, and the many high school math teachers and students who participated in the program and helped to make it better.

In closing, I want to thank the following board members who have retired for their stellar service to NC EMPT: Peter Kendrick of UNCA; Paul Duvall of UNCG, and

Nory Prochaska of WCU. I also want to recognize the work of members who had shorter tenures and have also left the board: Suzanne Williams of Central Piedmont Community College, Johannah Maynor of NC DPI, and Samuel Kaplan of UNCA. Moreover, I want to extend a word of welcome to the following new board members for 2015-2016: Lisa Meads of The College of the Albemarle, Joseph Reaper of NC DPI, Rudy Beharrysingh of UNCA, Ratnasingham Shivaji of UNCG, and Ben Kearns of WCU. Last, but not least, I want to thank Ms. Ellen Hilgoe, her staff, as well as currently serving NC EMPT Board members for their unwavering and stellar efforts in making NC EMPT such a remarkable success.

II. From the Associate Director

Ellen Hilgoe, August 2015

I am happily surrounded at the ground level by two incredibly hard-working teams, my small staff in the NC EMPT office and hundreds of high school math teachers across North Carolina. What a loyal band!

The 2014-15 year was filled with successful efforts to reach an even wider audience. The NC EMPT distribution list grew to more than 2,000 educators. Nine monthly e-newsletters were published and filled with timely information about teaching resources, creative ways to use NC EMPT, helpful updates regarding recent changes in NC community college math curriculum and placement procedures, and the developing story of the new SREB Math Ready course. A total of thirty-six “Practice Math Placement Test Questions” and their solutions were added to the NC EMPT website, one each Monday, as another terrific resource for students and teachers.



The NC EMPT Crew! (l to r): ECU student workers Samantha Arnold and Holly Britton; Associate Director Ellen Hilgoe; Administrative Support Associate Debby Hodges; ECU student workers Magen Smith and Emily Fisher.



NC EMPT remains the largest early math placement testing program in the nation and our efforts have been noted. With the aid of a Bill and Melinda Gates Foundation Education Grant, SREB has invested a great deal of energy in creating a mathematics course that promises support for high school students who require strengthening of math skills as they strive towards career and college readiness. North Carolina is one of the first states to implement this new course in public high schools statewide. With eighteen years of providing practice college math placement tests, SREB awarded NC EMPT \$18,000 from these grant monies to study the demographics and results of the new course during its initial year.

It truly “takes a village” to make NC EMPT work. The Advisory Board for the program includes a wide variety of K-16 educators and administrators (see pp. 6,7). Transparent communication at all levels is practiced. Staying abreast of mathematical developments at the high school, community college, and university levels is a mission. Most importantly, the recognition and consistent support of the program’s early intervention efforts by the State of North Carolina has been pivotal to success.

III. Introduction

The NC EMPT Program hopes to raise awareness of the importance of mathematics, and strives to give future incoming college freshmen an early warning of the mathematics skills necessary for successful placement in college-level mathematics.



By offering this non-threatening advice with opportune timing, that is, while students are still in high school and can maneuver to correct weaknesses, NC EMPT hopes to motivate students to be strong in mathematics and avoid the expensive pitfalls caused by lack of retention or lack of knowledge of the skills needed for success at the college level. The 2014-2015 placement test questions are based on objectives in the areas of number and operation, algebra, and geometry (see p. 21, p. 23, pp. 35-42). The questions were a result of a thorough study of current math placement tests used at NC community colleges and UNC institutions.

Understanding the Basics of an EMPT Program

Early Mathematics Placement Testing concisely describes a valuable intervention service provided to high school students in programs across the nation. The test allows students to experience a facsimile of an actual mathematics placement exam well before the first semester in college. Thus students, teachers, and parents become more aware of expectations, and therefore more able to react positively in a timely fashion. Students' results letters are individualized, offer a wealth of information about mathematical readiness, and provide a "reality check" of a student's current mastery of mathematics skills.

Some EMPT programs in the United States target high school juniors, in the hope that reinforcement of mathematics skills or corrective action can be taken in the senior year. The North Carolina program offers "practice" placement testing to students close to completing Algebra II, Mathematics III, and to students in upper-level math courses. This may include sophomores, juniors, or seniors. A new version of the NC EMPT test is created each year, and teachers are encouraged to test students near the end of their Algebra II and Math III, and during each subsequent math course. Reinforcement and retention of algebra skills is critical because university mathematics placement tests consist primarily

of algebra questions. For a closer look at the North Carolina EMPT Program, please read the documents found in [Appendix A](#).

Historically, a variety of EMPT programs have been offered, or are currently being considered, in at least twenty-nine states across the nation since the 1980s. Unfortunately, many of these have ceased to exist due to several factors including competition from existing mandated testing and funding problems. Currently, strong programs exist in North Carolina, Kentucky, Wisconsin, and California.

Organization of the NC EMPT Program

East Carolina University (ECU) operated a four-year pilot early math placement testing program from fall 1992 to spring 1996. Sixteen area high schools were involved, and ECU sponsored the pilot. As chair of the ECU Mathematics Department, Dr. Robert Bernhardt directed the program with the help of Dr. Sunday Ajose, and secretarial help was provided by the mathematics department staff. Funding for NC EMPT originated in the NC General Assembly in fall 1996 and was permanently transferred to ECU in spring 1997. A full-time program manager and office assistant were added to the staff. The program reached out to all public and non-public high schools statewide in 1997-1998. Participation numbers increased to a high of 47,925 high school students in 2005-2006. The NC EMPT state headquarters has been located at ECU since the program's inception.

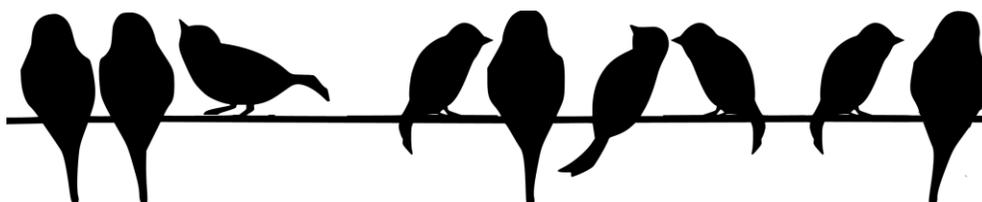
NC EMPT has also been very fortunate to be overseen by a diverse and talented advisory board. Representatives from the UNC General Administration, UNC institutions, NC Community College System, NC community colleges, and the NC Department of Public Instruction are included.

The following list includes the members of the **2014-2015 Advisory Board**:

Appalachian State Univ.	William Bauldry	Dept. of Mathematical Sciences
Central Piedmont Community College	Suzanne Williams	Mathematics Division
NC Dept. of Public Instruction	Jennifer Curtis	Chief, K-12 Mathematics Educ. Division
NC Dept. of Public Instruction	Lisa Ashe	Secondary Mathematics Consultant
East Carolina University	Johannes Hattingh	Director, NC EMPT, and Chair, Dept. of Mathematics
East Carolina University	Ellen Hilgoe	Associate Director, NC EMPT
Elizabeth City State University	Farrak Jackson	Chair, Dept. of Mathematics & Computer Science
Fayetteville State University	Dwight House	Chair, Dept. of Mathematics & Computer Science
NC A&T State University	Guoqing Tang	Chair, Dept. of Mathematics
NC Community College System	Wanda White	Director, Financial Aid & Student Success
NC Community College System	Wesley Beddard	Associate Vice President for Programs

NC Central University	Solomon Abraham	Dept. of Mathematics & Physics
NC State University	Leslie Kurtz	Department of Mathematics
UNC Asheville	Peter Kendrick	Director, Mathematics Assistance Center
UNC Asheville	Samuel Kaplan	Department of Mathematics
UNC-Chapel Hill	David Adalsteinsson	Department of Mathematics
UNC Charlotte	Mohammad Kazemi	Assoc. Chair, Department of Mathematics & Statistics
UNC Greensboro	Paul Duvall	Department of Mathematics & Statistics
UNC General Administration	Karrie Dixon	Vice President for Academic and Student Success
UNC Pembroke	Jay Wilkins	Dept. of Mathematics & Computer Science
UNC Wilmington	Kenneth Gurganus	Dept. of Mathematics & Statistics
Western Carolina University	Nory Prochaska	Director, Mathematics Tutoring Center, Dept. of Mathematics & Computer Science
Winston-Salem State Univ.	Frank Ingram	Chair, Department of Mathematics

The NC EMPT Advisory Board communicates often via email, postal mail, and subcommittee work throughout the year. Members represent all regions of North Carolina. The board met as a whole on October 17, 2014 at the UNC-General Administration Building in Chapel Hill. Subcommittee meetings were also held there in September 2014, April 2015, and July 13, 2015.



Outreach Efforts of the NC EMPT Program

Sharing the news about the free and valuable services provided by NC EMPT consumes a great deal of time and effort by the NC EMPT staff. These efforts continued throughout the school year and summer months. The following groups were contacted via e-mail or postal mail, and many were greeted face-to-face in presentations by the associate director at workshops and conferences:

- North Carolina public and non-public high school mathematics department chairs, mathematics teachers, school counseling department chairs, and principals
- North Carolina public school system superintendents and secondary math coordinators
- NC community college presidents
- University of North Carolina General Administration; institution chancellors and mathematics department chairs

- North Carolina Department of Public Instruction
- North Carolina Council of Teachers of Mathematics
- North Carolina Mathematics and Science Education Network Center directors
- North Carolina New Schools Project, Early College High Schools
- STEM Education (Science, Technology, Engineering, and Mathematics)
- East Carolina University High School Mathematics Contest
- NC Ready for Success
- Southern Regional Education Board
- National early mathematics placement testing programs and individuals interested in such programs in the following states: Kentucky, Maryland, California, Nevada, Ohio, Tennessee, Wisconsin

Also see [Appendix B: Promotion of the NC EMPT Program](#), for a listing of 18+ locations visited by the associate director. Also included are photos from some of the workshops and conferences.

A variety of media are used throughout the school year to encourage all public and non-public high school mathematics teachers, counselors, and administrators to take advantage of the free services the NC EMPT Program has to offer:

Helpful supplementary materials that can be used in the classroom by teachers to reinforce mathematics skills found on college mathematics placement tests are created yearly by the associate director. The materials are disseminated via postal and State Courier Mail and email, and are also posted on the program's website, www.ncempt.org. Free downloads are available. These materials include a listing of the most recent "Top Ten Missed Questions, 2014-15" (see pp. 81-84 in [Appendix C](#)) and the new weekly resource "Math Placement Test Question of the Week" (see samples on pp. 79-80). In addition, past math puzzles, such as the "Top Thirty Missed Questions" are still available for teachers to use as resources and are located on the program website.

As a token of appreciation to teachers for their time and energy, the associate director tries each year to provide a helpful gift for the classroom and includes this with each batch of testing results for every participating teacher. The 2014-2015 gift was a 25-page memo pad lined with a helpful coordinate grid. It reads, "Visit our website at www.ncempt.org!"



NC EMPT is Making Waves Nationally...

The ACT college assessment test is administered statewide in NC during each school year to public high school juniors to help measure readiness for career and college. Nationwide, states invested in the Common Core State Standards use the ACT or some other measure to address this same situation. The Southern Regional Education Board (SREB) has worked tirelessly to create a new high school fourth math course specifically designed to aid college-bound students whose mathematics skills are just below the readiness measure. Ellen Hilgoe, associate director of NC EMPT, was chosen to become part of the NC team of writers for this new curriculum and worked with writers from four other states during 2012 and 2013. The teams wrote a series of eight units that specifically highlighted the mathematics skills stated as necessary for success in college-level mathematics by a large group of higher-education faculty from across the nation. Hilgoe was a trainer during summer 2014 at seven locations in NC for high school teachers preparing to teach the SREB Math Ready course for the first time. Hilgoe also participated in six helpful SREB webinars for Math Ready teachers throughout 2014-15. These webinars offered great teaching tips and allowed teachers from several states to share their experiences teaching the course. Due to her involvement with this SREB project and NC EMPT, and her desire to help better prepare high school students mathematically, Hilgoe was chosen by SREB to attend a “Master Trainers Meeting for SREB Readiness Courses” in April 2015 in Atlanta, GA. Other trainers invited to attend included math educators from Arkansas, North Carolina, New York, Kentucky, and West Virginia. The group prepared to train teachers during the summer of 2015. Primary states implementing the SREB Math Ready course in public high schools statewide during 2015-16 include North Carolina, Mississippi, West Virginia, and Arkansas. The course is an option for high schools in Kentucky. Local school systems employing the Math Ready course include those located in Georgia, New York, Indiana, Ohio, Washington, Oregon, and Hawaii. Hilgoe attended North Carolina training sessions hosted by SREB and the NC Department of Public Instruction and presented the NC EMPT Program at these four regional workshops during summer 2015. Hilgoe emphasized to teachers that the two test versions offered each year by NC EMPT provide yet another insightful measure of students’ readiness for college-level mathematics.

A Quick Look at NC EMPT Participation Numbers 1997-2015

Pilot - Spring 1997:

Total Number of NC High Schools Solicited	80
Total Number of NC High Schools That Signed-Up for Testing	72
Total Number of NC High Schools That Actually Tested	66
Total Number of Students Tested	8,195

1997-1998:

Total Number of NC High Schools Solicited	376
Total Number of NC High Schools That Signed-Up for Testing	226
Total Number of NC High Schools That Actually Tested	205
Total Number of Students Tested	27,456

1998-1999:

Total Number of NC High Schools Solicited	357
Total Number of NC High Schools That Signed-Up for Testing	202
Total Number of NC High Schools That Actually Tested	189
Total Number of Students Tested	27,030

1999-2000:

Total Number of NC High Schools Solicited	637
Pretesting (with the 1998-1999 version of the NC EMPT test):	
Total Number of NC High Schools that Signed-Up	9
Total Number of NC High Schools that Actually Tested	4
Total Number of Students Pretested	364
Placement Testing (with the new 1999-2000 version of the NC EMPT test):	
Total Number of NC High Schools That Signed-Up for Testing	273
Total Number of NC High Schools That Actually Tested	251
Total Number of Students Tested	33,469
Grand Total of Students Tested in 1999-2000	33,833

2000-2001:

Total Number of NC High Schools Solicited	658
Pretesting (with the 1999-2000 version of the NC EMPT test):	
Total Number of NC High Schools that Signed-Up	58
Total Number of NC High Schools that Actually Tested	37
Total Number of Students Pretested	3,259
Placement Testing (with the new 2000-2001 version of the NC EMPT test):	
Total Number of NC High Schools That Signed-Up for Testing	307
Total Number of NC High Schools That Actually Tested	280
Total Number of Students Tested	35,002

Grand Total of Participating High Schools (nonoverlapping)	288
Grand Total of Students Tested in 2000-2001	38,261

2001-2002:

Total Number of NC High Schools Solicited	650
Pretesting (with the 2000-2001 version of the NC EMPT test):	
Total Number of NC High Schools that Signed-Up	67
Total Number of NC High Schools that Actually Tested	52
Total Number of Students Pretested	3,716
Placement Testing (with the new 2001-2002 version of the NC EMPT test):	
Total Number of NC High Schools That Signed-Up for Testing	299
Total Number of NC High Schools That Actually Tested	279
Total Number of Students Tested	37,804
Grand Total of Participating High Schools (nonoverlapping)	287
Grand Total of Students Tested in 2001-2002	41,520

2002-2003:

Total Number of NC High Schools Solicited (this includes 358 public and 290 non-public schools)	648
Pretesting (with the 2001-2002 version of the NC EMPT test):	
Total Number of NC High Schools that Signed-Up	65
Total Number of NC High Schools that Actually Tested	50
Total Number of Students Pretested	4,422
Placement Testing (with the new 2002-2003 version of the NC EMPT test):	
Total Number of NC High Schools That Signed-Up for Testing	311
Total Number of NC High Schools That Actually Tested	278
Total Number of Students Tested	34,399
Grand Total of Participating High Schools (nonoverlapping)	285
Grand Total of Students Tested in 2002-2003	38,821

2003-2004:

Total Number of NC High Schools Solicited (this includes 370 public and 273 non-public schools)	643
Pretesting (with the 2002-2003 version of the NC EMPT test):	
Total Number of NC High Schools that Signed-Up	51
Total Number of NC High Schools that Actually Tested	34
Total Number of Students Pretested	4,084
Placement Testing (with the new 2003-2004 version of the NC EMPT test):	
Total Number of NC High Schools That Signed-Up for Testing	266
Total Number of NC High Schools That Actually Tested	232
Total Number of Students Tested	29,465
Grand Total of Participating High Schools (nonoverlapping)	243
Grand Total of Students Tested in 2003-2004	33,549

2004-2005:

Total Number of NC High Schools Solicited (this includes 370 public and 259 non-public schools)	629
Pretesting (with the 2003-2004 version of the NC EMPT test):	
Total Number of NC High Schools that Signed-Up	69
Total Number of NC High Schools that Actually Tested	68
Total Number of Students Pretested	6,339
Placement Testing (with the new 2004-2005 version of the NC EMPT test):	
Total Number of NC High Schools That Signed-Up for Testing	308
Total Number of NC High Schools That Actually Tested	244
Total Number of Students Tested	37,375
Grand Total of Participating High Schools (nonoverlapping)	302
Grand Total of Students Tested in 2004-2005	43,714

2005-2006:

Total Number of NC High Schools Solicited (this includes 378 public and 248 non-public schools)	626
Pretesting (with the 2004-2005 version of the NC EMPT test):	
Total Number of NC High Schools that Signed-Up	78
Total Number of NC High Schools that Actually Tested	65
Total Number of Students Pretested	5,919
Placement Testing (with the new 2005-2006 version of the NC EMPT test):	
Total Number of NC High Schools That Signed-Up for Testing	318
Total Number of NC High Schools That Actually Tested	285
Total Number of Students Tested	42,006
Grand Total of Participating High Schools (nonoverlapping)*	303
Grand Total of Students Tested in 2005-2006	47,925

2006-2007:

Total Number of NC High Schools Solicited (this includes 502 public and 250 non-public schools)	752
Pretesting (with the 2005-2006 version of the NC EMPT test):	
Total Number of NC High Schools that Signed-Up	87
Total Number of NC High Schools that Actually Tested	73
Total Number of Students Pretested	7,016
Placement Testing (with the new 2006-2007 version of the NC EMPT test):	
Total Number of NC High Schools That Signed-Up for Testing	310
Total Number of NC High Schools That Actually Tested	274
Total Number of Students Tested	39,402
Grand Total of Participating High Schools (nonoverlapping)*	292
Grand Total of Students Tested in 2006-2007	46,418

2007-2008:

Total Number of NC High Schools Solicited (this includes 534 public and 246 non-public schools)	780
Pretesting (with the 2006-2007 version of the NC EMPT test):	
Total Number of NC High Schools that Signed-Up	73
Total Number of NC High Schools that Actually Tested	52
Total Number of Students Pretested	5,763
Placement Testing (with the new 2007-2008 version of the NC EMPT test):	
Total Number of NC High Schools That Signed-Up for Testing	330
Total Number of NC High Schools That Actually Tested	280
Total Number of Students Tested	37,300
Grand Total of Participating High Schools (nonoverlapping)*	293
Grand Total of Students Tested in 2007-2008	43,063

2008-2009: (Note that testing in 2008-2009 occurred only during the second half of the school year.)

Total Number of NC High Schools Solicited (this includes 542 public and 250 non-public schools)	792
Pretesting (with the 2007-2008 version of the NC EMPT test):	
Total Number of NC High Schools that Signed-Up	33
Total Number of NC High Schools that Actually Tested	20
Total Number of Students Pretested	1,794
Placement Testing (with the new 2008-2009 version of the NC EMPT test):	
Total Number of NC High Schools That Signed-Up for Testing	283
Total Number of NC High Schools That Actually Tested	233
Total Number of Students Tested	21,682
Grand Total of Participating High Schools (nonoverlapping)*	243
Grand Total of Students Tested in 2008-2009	23,476

2009-2010:

Total Number of NC High Schools Solicited (this includes 548 public and 249 non-public schools)	797
Pretesting (with the 2008-2009 version of the NC EMPT test):	
Total Number of NC High Schools that Signed-Up	61
Total Number of NC High Schools that Actually Tested	45
Total Number of Students Pretested	4,119
Placement Testing (with the new 2009-2010 version of the NC EMPT test):	
Total Number of NC High Schools That Signed-Up for Testing	312
Total Number of NC High Schools That Actually Tested	266
Total Number of Students Tested	33,315
Grand Total of Participating High Schools (nonoverlapping)*	281
Grand Total of Students Tested in 2009-2010	37,434

2010-2011:

Total Number of NC High Schools Solicited 845
(602 public including 30 charter and 3 federal, and 243 non-public schools)

Option #1: Pretesting (with the 2009-2010 version of the NC EMPT test):

Total Number of NC High Schools that Signed-Up 92
Total Number of NC High Schools that Actually Tested 70
Total Number of Students Pretested 5,955

Option #2: Testing (with the new 2010-2011 version of the NC EMPT test):

Total Number of NC High Schools That Signed-Up for Testing 317
Total Number of NC High Schools That Actually Tested 281
Total Number of Students Tested 33,014

Grand Total of Participating High Schools (nonoverlapping)* 302
Grand Total of Students Tested in 2010-2011 **38,969**

2011-2012:

Total Number of NC High Schools Solicited 844
(601 public including 30 charter and 3 federal, and 243 non-public schools)

Option #1: Pretesting (with the 2010-2011 version of the NC EMPT test):

Total Number of NC High Schools that Signed-Up 96
Total Number of NC High Schools that Actually Tested 72
Total Number of Students Pretested 6,701

Option #2: Testing (with the new 2011-2012 version of the NC EMPT test):

Total Number of NC High Schools That Signed-Up for Testing 309
Total Number of NC High Schools That Actually Tested 269
Total Number of Students Tested 37,516

Grand Total of Participating High Schools (nonoverlapping)* 291
Grand Total of Students Tested in 2011-2012 **44,217**

2012-2013:

Total Number of NC High Schools Solicited 771
(547 public including 29 charter and 2 federal, and 190 non-public schools)

Option #1: Pretesting (with the 2011-2012 version of the NC EMPT test):

Total Number of NC High Schools that Signed-Up 84
Total Number of NC High Schools that Actually Tested 87
Total Number of Students Pretested 8,252

Option #2: Testing (with the new 2012-2013 version of the NC EMPT test):

Total Number of NC High Schools That Signed-Up for Testing 265
Total Number of NC High Schools That Actually Tested 227
Total Number of Students Tested 28,838

Grand Total of Participating High Schools (nonoverlapping)* 261
Grand Total of Students Tested in 2012-2013 **37,090**

2013-2014:

Total Number of NC High Schools Solicited 775
(584 public including 33 charter and 3 federal, and 191 non-public schools)

Option #1: Pretesting (with the 2012-2013 version of the NC EMPT test):

Total Number of NC High Schools that Signed-Up 97
Total Number of NC High Schools that Actually Tested 72
Total Number of Students Pretested 7,192

Option #2: Testing (with the new 2013-2014 version of the NC EMPT test):

Total Number of NC High Schools That Signed-Up for Testing 232
Total Number of NC High Schools That Actually Tested 189
Total Number of Students Tested 23,439

Grand Total of Participating High Schools (nonoverlapping)* 216*
Grand Total of Students Tested in 2013-2014 **30,631**

2014-2015:

Total Number of NC High Schools Solicited 774
(585 public including 34 charter and 3 federal, and 189 non-public schools)

Option #1: Pretesting (with the 2013-2014 version of the NC EMPT test):

Total Number of NC High Schools that Signed-Up 142
Total Number of NC High Schools that Actually Tested 118
Total Number of Students Pretested 12,439

Option #2: Testing (with the new 2014-2015 version of the NC EMPT test):

Total Number of NC High Schools That Signed-Up for Testing 278
Total Number of NC High Schools That Actually Tested 209
Total Number of Students Tested 26,464

Grand Total of Participating High Schools (nonoverlapping)* 253*
Grand Total of Students Tested in 2014-2015 **38,903**

*** A list of the 253 participating schools in 2014-2015 follows.**



Another Harsh Winter Weather Makes an Impact!



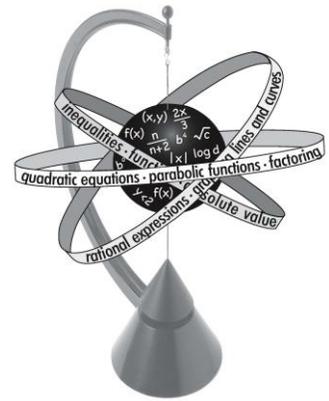
From a teacher in Wake County, May 2015: “Due to snow issues and the loss of so many instructional days, most teachers chose not to give the EMPT test or gave it on the Spring Break make-up day (very low attendance). I want you to know that we won't let the materials go to waste!”

Totals for 2014-15:

Testing Windows:	# Tests Requested:	# Tests Returned for Scoring:
Fall 2014, Option #1	9,907	7,371
Spring 2015, Option #1	11,184	5,068
Fall 2014, Option #2	18,879	10,420
Spring 2015, Option #2	28,311	16,044
Totals:	68,281	38,903

High school contact persons who received 2014-15 tests and did not use or return them will be encouraged to administer these during fall and spring 2015-16 as Option #1 testing.

North Carolina Early Mathematics Placement Testing Program 2014-2015



Participating High Schools: 253
Participating Mathematics Teachers: 667
Participating Students: 38,903

A L BROWN HIGH
 ALAMANCE CHRISTIAN SCHOOL
 ALAMANCE-BURLINGTON MIDDLE COLLEGE
 ALEXANDER CENTRAL HIGH
 APEX HIGH
 ARENDELL PARROTT ACAD
 ASHE COUNTY HIGH
 ASHEVILLE HIGH
 ASHEVILLE SCHOOL
 AYDEN-GRIFTON HIGH
 BANDYS HIGH
 BARTLETT YANCEY HIGH
 BEAR GRASS CHARTER SCH
 BIBLE BAPTIST CHRISTIAN SCHOOL
 BREVARD HIGH
 BUNCOMBE COUNTY EARLY COLLEGE HIGH
 BUNKER HILL HIGH
 BUNN HIGH
 CALDWELL ACADEMY
 CALVARY BAPT CHURCH SCH
 CAMTECH HIGH
 CAPE FEAR CHRISTIAN ACADEMY
 CARDINAL GIBBONS HIGH
 CARMEL CHRISTIAN SCHOOL
 CARY HIGH
 CATO MIDDLE COLLEGE HIGH
 CENTRAL ACAD @ LAKE PARK
 CENTRAL HAYWOOD HIGH
 CFA ACADEMY
 CHARLES B AYCOCK HIGH
 CHARLOTTE CATHOLIC HIGH
 CHARLOTTE SECONDARY SCH
 CHARLOTTE UNITED CHRISTIAN ACADEMY
 CHASE HIGH
 CHERRYVILLE HIGH
 CLEVELAND HIGH
 CLINTON HIGH
 COASTAL CHRISTIAN HIGH
 COMMUNITY BAPTIST SCHOOL
 COMMUNITY CHRISTIAN SCHOOL
 CONCORD HIGH
 CORNERSTONE CHRISTIAN SCH
 COUNTRYSIDE MONTESSORI SCH

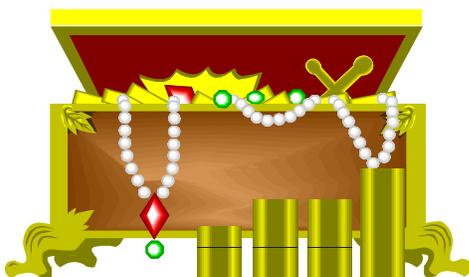
CRAMERTON CHRISTIAN ACAD
 CREST HIGH
 CROATAN HIGH
 CROSSROADS CHRISTIAN SCHOOL, HENDERSON
 CUTHBERTSON HIGH
 D H CONLEY HIGH
 DAVID W BUTLER HIGH
 DAVIE COUNTY HIGH
 DOUGLAS BYRD HIGH
 DUDLEY HIGH
 DURHAM SCHOOL OF THE ARTS
 EARLY COLLEGE @ GUILFORD
 EAST CARTERET HIGH
 EAST HENDERSON HIGH
 EAST LINCOLN HIGH
 EAST MECKLENBURG HIGH
 EAST RUTHERFORD HIGH
 EASTERN ALAMANCE HIGH
 EASTERN GUILFORD HIGH
 ENKA HIGH
 EPIPHANY SCHOOL OF GLOBAL STUDIES
 EUGENE ASHLEY HIGH
 FIKE HIGH
 FLEMINGTON ACADEMY
 FLETCHER ACADEMY, RALEIGH
 FORSYTH COUNTRY DAY SCHOOL
 FRANKLIN ACADEMY
 FRANKLIN HIGH
 FRED T FOARD HIGH
 FREEDOM HIGH
 GASTON CHRISTIAN SCHOOL
 GASTON EARLY COLLEGE
 GATES COUNTY HIGH
 GOSPEL LIGHT CHRISTIAN SCH
 GRACE CHRISTIAN SCHOOL, SANFORD
 GRANVILLE MAGNET SCHOOL
 GREEN HOPE HIGH
 GREENE CENTRAL HIGH
 GREENFIELD SCHOOL
 GREENSBORO DAY SCHOOL
 GREENVILLE CHRISTIAN ACAD
 GRIMSLEY HIGH
 HAVELOCK HIGH

HAWBRIDGE SCHOOL
 HAWTHORNE HIGH, ACADEMY OF HEALTH SCIENCES
 HAYWOOD CHRISTIAN ACADEMY
 HAYWORTH CHRISTIAN SCHOOL
 HIBRITEN HIGH
 HICKORY CAREER & ARTS MAGNET HIGH
 HICKORY HIGH
 HICKORY RIDGE HIGH
 HILLSIDE NEW TECH HIGH
 HOKE COUNTY HIGH
 HOPEWELL HIGH
 HUGH M CUMMINGS HIGH
 INDEPENDENCE HIGH, CHARLOTTE
 J D CLEMENT EARLY COLLEGE HIGH
 J F WEBB HIGH
 J F WEBB SCHOOL OF HEALTH & LIFE SCIENCES
 JACKSONVILLE HIGH
 JAMES KENAN HIGH
 JIMMY C DRAUGHN HIGH
 JOHN A HOLMES HIGH
 JOHN PAUL II CATHOLIC HIGH
 JOHN T HOGGARD HIGH
 JONES SENIOR HIGH
 KESTREL HEIGHTS SCHOOL
 KINGS MOUNTAIN HIGH
 KINSTON HIGH
 LAKE NORMAN CHARTER SCH
 LAKE NORMAN HIGH
 LEE COUNTY HIGH
 LEESVILLE ROAD HIGH
 LEJEUNE HIGH
 LOUISBURG HIGH
 MAIDEN HIGH
 MARIE G DAVIS MILITARY & GLOBAL LEADERSHIP ACAD
 MASSEY HILL CLASSICAL HIGH
 MATTAMUSKEET EARLY COLLEGE
 METROLINA CHRISTIAN ACADEMY
 MIDDLE CREEK HIGH
 MIDWAY HIGH
 MILLBROOK HIGH
 MITCHELL HIGH

MOUNT PLEASANT HIGH
MOUNT TABOR HIGH
MOUNTAIN HERITAGE HIGH
NASH CENTRAL HIGH
NASH-ROCKY MOUNT EARLY COLLEGE HIGH
NEEDHAM BROUGHTON HIGH
NEW BERN HIGH
NEW HANOVER HIGH
NEWTON-CONOVER HIGH
NORTH LENOIR HIGH
NORTH LINCOLN HIGH
NORTH MECKLENBURG HIGH
NORTH MOORE HIGH
NORTH PITT HIGH
NORTH RALEIGH CHRISTIAN ACADEMY
NORTH STOKES HIGH
NORTH WILKES HIGH
NORTHAMPTON COUNTY HIGH
NORTHEAST ACADEMY
NORTHEASTERN HIGH
NORTHERN NASH HIGH
NORTHERN VANCE HIGH
NORTHSIDE CHRISTIAN ACADEMY
NORTHSIDE HIGH, JACKSONVILLE
NORTHWEST CABARRUS HIGH
NORTHWEST SCH OF THE ARTS
OAKWOOD SCHOOL
OCRACOKE SCHOOL
OLYMPIC SCH OF BIOTECH, HLTH, & PUBLIC ADMIN
OLYMPIC SCH OF MATH, ENG, TECH & SCI
OLYMPIC SCH OF RENAISSANCE - ARTS & TECH
OXFORD PREPARATORY HIGH
PAISLEY IB MAGNET SCHOOL
PAMLICO COUNTY HIGH
PASQUOTANK COUNTY HIGH
PAUL R BROWN LDRSHIP ACAD
PENDER HIGH
PERQUIMANS COUNTY HIGH
PERSON HIGH
PIEDMONT COMMUNITY CHARTER SCHOOL
PIEDMONT HIGH
PINE FOREST HIGH

PINE LAKE PREPARATORY
PISGAH HIGH
PORTER RIDGE HIGH
PROVIDENCE HIGH
PUNGO CHRISTIAN ACADEMY
R J REYNOLDS HIGH
RALEIGH CHARTER HIGH
RED SPRINGS HIGH
REID ROSS CLASSICAL SCHOOL
RICHLANDS HIGH
RIVERSIDE HIGH, WILLIAMSTON
ROANOKE RAPIDS HIGH
ROCKY MOUNT ACADEMY
ROCKY MOUNT HIGH
ROCKY RIVER HIGH
ROSEWOOD HIGH
SAINT STEPHENS HIGH
SALEM ACADEMY
SCHOOL OF INQUIRY & LIFE SCIENCES @ ASHEVILLE
SEVENTY-FIRST HIGH
SMOKY MOUNTAIN HIGH
SOUTH BRUNSWICK HIGH
SOUTH CALDWELL HIGH
SOUTH CENTRAL HIGH
SOUTH CREEK HIGH
SOUTH LENOIR HIGH
SOUTH POINT HIGH
SOUTH ROBESON HIGH
SOUTHERN ALAMANCE HIGH
SOUTHERN GUILFORD HIGH
SOUTHERN LEE HIGH
SOUTHERN NASH HIGH
SOUTHERN SCH OF ENERGY & SUSTAINABILITY
SOUTHERN VANCE HIGH
SOUTHERN WAYNE HIGH
SOUTHLAKE CHRISTIAN ACAD
SOUTHWEST EDGECOMBE HIGH
SPRING CREEK HIGH
STARMOUNT HIGH
STATESVILLE HIGH
SWANSBORO HIGH
T C ROBERSON HIGH
TARBORO HIGH
TERRY SANFORD HIGH
THALES ACADEMY/ROLESVILLE CAMPUS

THOMASVILLE HIGH
TOPSAIL HIGH
TRINITY CHRISTIAN PREPARATORY SCHOOL
TRINITY CHRISTIAN SCHOOL, GREENVILLE
TRITON HIGH
TUSCOLA HIGH
TWILIGHT HIGH
UNION ACADEMY, MONROE
UNION GROVE CHRISTIAN SCH
UNION PINES HIGH
UNITED FAITH CHRISTIAN ACAD
UNIVERSITY CHRISTIAN HIGH
UWHARRIE CHARTER ACADEMY
VANCE COUNTY EARLY COLLEGE HIGH
VANDALIA CHRISTIAN SCHOOL
VICTORY CHRISTIAN CENTER SCHOOL
VILLAGE CHRISTIAN ACADEMY
WAKE YOUNG WOMEN'S LEADERSHIP ACADEMY
WALLACE-ROSE HILL HIGH
WALTER M WILLIAMS HIGH
WARREN COUNTY HIGH
WASHINGTON HIGH
WAYNE EARLY MIDDLE COLLEGE HIGH
WEAVER ACADEMY
WEDDINGTON HIGH
WESLEYAN CHRISTIAN ACADEMY
WEST BLADEN HIGH
WEST CARTERET HIGH
WEST CRAVEN HIGH
WEST HENDERSON HIGH
WEST IREDELL HIGH
WEST MECKLENBURG HIGH
WESTCHESTER COUNTRY DAY SCHOOL
WESTERN ALAMANCE HIGH
WESTERN HARNETT HIGH
WHITE OAK HIGH
WILKES EARLY COLLEGE HIGH
WILLIAM A HOUGH HIGH
WOODLAWN SCHOOL



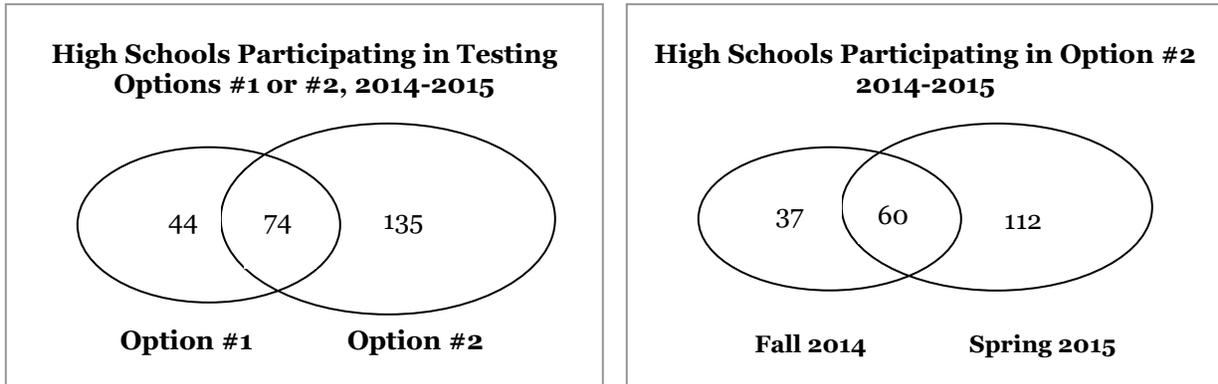
**North Carolina Early Mathematics
Placement Testing-
A Treasure Chest of Mathematical
Advice for the College-Bound!**

www.ncempt.org

Ellen Hilgoe, Associate Director
Phone: 252-328-6418
E-mail: ncempt@ncempt.org

IV. Summary of 2014-2015 Testing

Two versions of the NC EMPT test were administered during the year. For those schools interested in pretesting early in a new term for diagnostic and motivational purposes, Option #1, the previous 2013-2014 version was used. Pretesting data for Option #1 can be found on page 15. Option #2, used by the vast majority of schools, involves administering the new 2014-2015 version of the NC EMPT test later in the term. High schools have the choice to participate in Option #1 or Option #2, or both. Teachers administered the traditional paper-and-pencil test in their classrooms. Interesting data is given below:



Participants Using the 2014-2015 Version of the NC EMPT Test (Option #2):

Time Period	Number of Students
Fall 2014	10,420
Spring 2015	16,044
Total for Year	26,464

NC EMPT Scores and Levels

Student opscan forms were graded at the NC EMPT office at East Carolina University. Feedback was returned to the school's contact person immediately. Turnaround time is defined to be the amount of time it takes to return testing results from the day a batch of opscons arrives at the NC EMPT office to the day the results are mailed back to the high school from the office. **The average turnaround time during 2014-2015 for the return of Option #1 and Option #2 test results to 38,903 students remained 0.8 days, our fastest time ever!!**

There are 32 questions on each test version. Test scores are grouped into four levels. Level 1 is the lowest level and Level 4 is the highest. A student placing into Levels 3 or 4 is considered college-ready in mathematics:

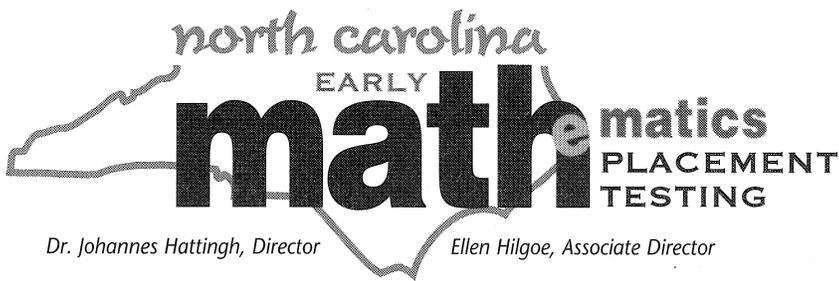
<u>EMPT Level</u>	<u>Number of Correct Answers</u>
1	0-11
2	12-16
3	17-24
4	25-32

These scores were then used to advise each student in a personalized letter. Each letter contained a test score, the test score converted to a percent, a corresponding EMPT level, a listing of the mathematical objective for each test question, a listing of each answer given by the student, a listing of each correct answer, and an interpretation of each student's readiness to take college-level mathematics courses. The suggested levels were interpreted as:

- Level 1: A Level 1 score indicates the student is not ready for college-level math courses and must take remedial mathematics.
- Level 2: A Level 2 score indicates the student must take remedial mathematics in some choices of majors.
- Level 3: A Level 3 score indicates the student is ready for a beginning-level college mathematics course. However, a Level 3 score may be considered borderline at some universities for students planning to major in math, science, or engineering.
- Level 4: A Level 4 score indicates a solid high school preparation for college-level mathematics. Some universities may allow a student scoring at Level 4 on their math placement test to skip the first college math course, depending on that student's choice of major.

Each student's results letter also included valuable advice about the beginning required mathematics courses for their chosen major and the actual mathematics placement procedure at the NC community college or UNC institution of their choice. In addition, helpful website addresses were provided for the mathematics department and math course descriptions for the college or university of choice. Samples of student results letters follow.

The contact person of each participating high school also received a summary, in various formats, of the test results of all students who participated at the school. Individual teachers received helpful results by class and period. Each teacher was provided with a copy of a brochure titled "Mathematics Placement Procedures at NC Community Colleges and UNC Constituent Institutions, 2014-2015," a handy reference tool for their college-bound students. The brochure is updated each year by the associate director upon the advice of the NC EMPT Advisory Board members who represent the fifteen UNC campuses and fifty-eight NC community colleges. A sample of this brochure follows as well.



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e-mail ncempt@ncempt.org
http://www.ncempt.org

June 23, 2015

SAMPLE STUDENT

Teacher ID: 01

Period: 03

Score: 8

Percent Correct: 25 %

EMPT Placement Level: 1

Thank you for participating in the North Carolina EMPT program. Please note your score and EMPT placement level shown above. The placement levels range from 4 (the highest) to 1 (the lowest). The maximum score on the test is 32.

A placement level of 1 indicates that a student is not ready for college-level mathematics courses and must take one or more prerequisite mathematics courses below college level in some choices of majors. Taking remedial mathematics courses in college could increase the amount of time that it takes you to graduate. Potentially, this could cost you extra tuition and delay the start of your career.

However, you can do something about this. You do have the remainder of your time in high school to take mathematics classes and improve your placement level. Please consult your mathematics teacher or guidance counselor for information about the best math courses for you to take. A summary of your test results is given below. You would have needed 4 more correct answers on the exam to reach Level 2 .

TEST SUMMARY

#	Objective	Correct Answer	Your Answer	#	Objective	Correct Answer	Your Answer
1	order fractions least to greatest	C	B	17	recognize function given data	D	E
2	simplify using dist. property	B	C	18	add rational expressions	C	C
3	simplify using laws of exponents	C	A	19	find eq. of line given its graph	E	A
4	find x-intercept of line given eq	B	D	20	solve system of 2 linear eqs	D	D
5	find surface area of rect prism	E	C	21	solve word problem: % increase	D	E
6	solve linear inequality	A	A	22	write number in scientific not.	B	C
7	solve word problem: percent	C	C	23	choose trig ratio in right triangle	A	D
8	solve word problem: proportion	B	C	24	find equation of inverse of func.	B	C
9	rationalize denom. of fraction	D	D	25	find shaded area of circle	B	C
10	find measure of angle of triangle	C	C	26	solve exponential equation	E	B
11	evaluate function	A	B	27	apply Pythagorean Thm	D	E
12	solve absolute value equation	D	B	28	solve quadratic equation	E	A
13	eval using laws of rational exponents	D	B	29	find range of func. given graph	A	B
14	apply mean, med., mode, range	E	E	30	solve word problem: quad func	C	D
15	identify eq. of parabolic graph	A	B	31	apply midpoint formula	A	B
16	solve formula given values	B	B	32	apply simple interest formula	E	B

Correct: 8 Incorrect: 24 Omitted: 0 Unscannable: 0

More Information on the Back →

You indicated that you wish to attend A Community College, and that you expect to major in Business, Management and Marketing. The course offerings at the fifty-eight North Carolina community colleges vary widely and require different abilities in mathematics depending upon your choice of curriculum. If your NC EMPT Level is a 4 or 3, you are probably ready to begin with the first required college-level math course in your chosen curriculum. However, if your NC EMPT Level is a 2 or a 1, you will probably need to take a remedial math course or courses prior to beginning the college-level math required in your chosen curriculum.

Most students entering a community college in North Carolina take the North Carolina Diagnostic Assessment and Placement (NC DAP) Test during their summer orientation or prior to their first semester of college courses. Cut scores to enter college-level math courses are standardized across all 58 community colleges and test results are transferable. Many students will benefit from brushing up on math skills prior to taking the NC DAP. The NC EMPT practice placement test helps students understand what skills must be improved so the appropriate degree-counting math course(s) can be taken successfully in college.

North Carolina community colleges are implementing a new placement policy, Multiple Measures of Placement, for incoming students that establishes a hierarchy of measures that colleges will use to determine students' readiness for college-level courses. High school students who meet the GPA or ACT/SAT benchmarks will be exempt from diagnostic placement testing and will be considered 'college-ready' for gateway math and English courses. Some community colleges are currently using Multiple Measures of Placement (MMP). All North Carolina community colleges will implement MMP by the fall of 2015. Students should check with their local college for more details.

We wish you the best in your continued studies.

Note: Please recall that your NC EMPT score is a “mathematical snapshot” only of your present readiness for college mathematics. In particular, you must still take the mathematics placement test at the university or community college you choose to attend.

The NC EMPT test score does NOT substitute for the mathematics placement test you will take at a university or college.



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<http://www.ncempt.org>

Dr. Johannes Hattingh, Director

Ellen Hilgoe, Associate Director

June 23, 2015

SAMPLE STUDENT

Teacher ID: 01

Period: 03

Score: 17

Percent Correct: 53 %

EMPT Placement Level: 3

Thank you for participating in the North Carolina EMPT program. Please note your score and EMPT placement level shown above. The placement levels range from 4 (the highest) to 1 (the lowest). The maximum score on the test is 32.

A placement level of 3 indicates that a student is ready for a beginning-level college mathematics course. However, a Level 3 score may be considered borderline at some universities for students planning to major in math, science, or engineering. Taking remedial mathematics courses in college could increase the amount of time that it takes you to graduate. Potentially, this could cost you extra tuition and delay the start of your career.

However, you can do something about this. You do have the remainder of your time in high school to take mathematics classes and improve your placement level. Please consult your mathematics teacher or guidance counselor for information about the best math courses for you to take. A summary of your test results is given below. You would have needed 8 more correct answers on the exam to reach Level 4.

TEST SUMMARY

#	Objective	Correct Answer	Your Answer	#	Objective	Correct Answer	Your Answer
1	order fractions least to greatest	C	C	17	recognize function given data	D	E
2	simplify using dist. property	B	B	18	add rational expressions	C	B
3	simplify using laws of exponents	C	A	19	find eq. of line given its graph	E	E
4	find x-intercept of line given eq	B	E	20	solve system of 2 linear eqs	D	C
5	find surface area of rect prism	E	C	21	solve word problem: % increase	D	E
6	solve linear inequality	A	A	22	write number in scientific not.	B	B
7	solve word problem: percent	C	A	23	choose trig ratio in right triangle	A	A
8	solve word problem: proportion	B	B	24	find equation of inverse of func.	B	C
9	rationalize denom. of fraction	D	D	25	find shaded area of circle	B	B
10	find measure of angle of triangle	C	C	26	solve exponential equation	E	A
11	evaluate function	A	A	27	apply Pythagorean Thm	D	C
12	solve absolute value equation	D	C	28	solve quadratic equation	E	E
13	eval using laws of rational exponents	D	D	29	find range of func. given graph	A	E
14	apply mean, med., mode, range	E	E	30	solve word problem: quad func	C	D
15	identify eq. of parabolic graph	A	A	31	apply midpoint formula	A	A
16	solve formula given values	B	A	32	apply simple interest formula	E	E

Correct: 17 Incorrect: 15 Omitted: 0 Unscannable: 0

More Information on the Back →

You indicated that you wish to attend UNC Charlotte, and that you expect to major in Biology and Biological Sciences. The beginning math course(s) required for this major is(are) College Algebra and Elements of Statistics I (Biological Sciences). If your NC EMPT Level is a 4 or 3, you are probably ready to begin with this(these) course(s). However, if your NC EMPT Level is a 2 or 1, you probably will need to take a remedial math course prior to beginning the math requirements for this major.

Most entering students at UNC Charlotte are required to have results from the SAT-Math section test or the ACT equivalent test prior to placement in their first math course. Students with AP or transfer math credit will be placed in their first math course based on the class level credit received.

If students do not have AP or transfer math credit, the SAT-Math score or ACT equivalent score will be used to place students in their first math course. SAT Math scores less than 480 (ACT less than 18) place students in Math 0900 (Developmental Math). SAT Math scores ranging from 480-540 (ACT 18-22) will allow students to enroll in Math 1100, Math 1102, or Math 1105 (College Algebra, Survey of Math, or Finite Math). SAT Math scores ranging from 550-600 (ACT 23-25) will allow students to enroll in Math 1100, Math 1102, Math 1103 (Pre-Calculus), or Math 1105. SAT Math scores ranging from 610-800 (ACT 23-36) will allow students to enroll in the above courses, in Math 1120, 1241 (Business Calculus, Calculus 1), or Stat 1220, Stat 1221, Stat 1222 (Business Stat, Bio-Stat, Social Science Stat).

Transfer students, adult students, or international students who do not have a SAT-Math score, or ACT score, or math transfer credit, will be asked to take the hard copy math placement test to determine their first math course. The math placement test is 25-question, 30-minute test. Calculators are not allowed. Scores less than 11 will place students in Math 0900; scores ranging from 11-13 allow students to enroll in Math 1100, Math 1102, or Math 1105; scores ranging from 14-17 will allow students to enroll in Math 1100, Math 1102, Math 1103, or Math 1105; scores ranging from 18-25 will place allow students to enroll in the above courses, or in Math 1120, Math 1241, Stat 1220, Stat 1221, or Stat 1222.

For more information about the UNCC Department of Mathematics, visit: <http://www.math.uncc.edu>

For UNCC math course descriptions, visit: <http://catalog.uncc.edu/undergraduate-catalogs/current/course-descriptions/MATH>

We wish you the best in your continued studies.

Note: Please recall that your NC EMPT score is a “mathematical snapshot” only of your present readiness for college mathematics. In particular, you must still take the mathematics placement test at the university or community college you choose to attend.

The NC EMPT test score does NOT substitute for the mathematics placement test you will take at a university or college.



UNC Charlotte

Most entering students at UNC Charlotte are required to have results from the SAT-Math section test or the ACT equivalent test prior to placement in their first math course. Students with AP or transfer math credit will be placed in their first math course based on the class level credit received.

If students do not have AP or transfer math credit, the SAT-Math score or ACT equivalent score will be used to place students in their first math course. SAT Math scores less than 480 (ACT less than 18) place students in Math 0900 (Developmental Math). SAT Math scores ranging from 480-540 (ACT 18-22) will allow students to enroll in Math 1100, Math 1102, or Math 1105 (College Algebra, Survey of Math, or Finite Math). SAT Math scores ranging from 550-600 (ACT 23-25) will allow students to enroll in Math 1100, Math 1102, Math 1103 (Pre-Calculus), or Math 1105. SAT Math scores ranging from 610-800 (ACT 23-36) will allow students to enroll in the above courses, in Math 1120, 1241 (Business Calculus, Calculus 1), or Stat 1220, Stat 1221, Stat 1222 (Business Stat, Bio-Stat, Social Science Stat).

Transfer students, adult students, or international students who do not have a SAT-Math score, or ACT score, or math transfer credit, will be asked to take the hard copy math placement test to determine their first math course. The math placement test is 25-question, 30-minute test. Calculators are not allowed. Scores less than 11 will place students in Math 0900; scores ranging from 11-13 allow students to enroll in Math 1100, Math 1102, or Math 1105; scores ranging from 14-17 will allow students to enroll in Math 1100, Math 1102, Math 1103, or Math 1105; scores ranging from 18-25 will place allow students to enroll in the above courses, or in Math 1120, Math 1241, Stat 1220, Stat 1221, or Stat 1222.

For more information about the UNCC Department of Mathematics, visit: <http://www.math.uncc.edu>
For UNCC math course descriptions, visit: <http://catalog.uncc.edu/undergraduate-catalogs/current/course-descriptions/MATH>



UNC Greensboro

The Math Placement Tests will determine your eligibility to enroll in MAT 120 (Calculus for Business and the Social Sciences), 151 (Precalculus II), 190 (single semester Precalculus), or 191 (Calculus I). Certain entry level courses have no prerequisites; students who wish to enroll in MAT 112 (Contemporary Topics in Mathematics), 115 (College Algebra), 150 (Precalculus I), or STA 108 (Elementary

Introduction to Probability and Statistics) may do so without a placement test. Students with a sufficiently strong mathematics background who wish to enroll in MAT 120, 151, 190, or 191 must take the placement test(s) or score 2 or higher on the AP Calculus Exam. The department has a series of placement tests, which students take online via their Blackboard account. Additional information can be found at <http://www.uncg.edu/mat/undergraduate/mathplacetest.html>.

For more information about the UNCG Mathematics and Statistics Department, visit: <http://www.uncg.edu/mat/>
For UNCG math course descriptions, visit: <http://www.uncg.edu/mat/links/undergrad-bulletin>.
Then click on the link: Mathematics Courses (MAT).



UNC Pembroke

Freshmen entering the University of North Carolina at Pembroke take a departmental-developed mathematics placement test during their orientation session prior to their fall semester of classes. The 2014-2015 mathematics placement test at the University of North Carolina at Pembroke is a revised, calculator optional, 42-question test of two batteries. A score of less than 8 on battery one requires the student to enroll in Math 104, a remedial mathematics course. Subsequent scores offer recommendations for enrollment rather than requirements, but statistical data supports our recommendations for placement.

A score range of 8 to 11 on battery one will place students into Math 105 – Math 107 (low), which means the student has the option of taking either Math 105 (Introduction to College Mathematics) or Math 107 (College Algebra). We recommend Math 105. A score range of 12 to 15 on battery one will place students into Math 105 – Math 107 (high), which means the student has the option of taking either Math 105 or Math 107. We recommend Math 107. A score range of 0 to 3 on battery two will place students into Math 108 (Plane Trigonometry). A score range of 4 to 7 on battery two will place students into Math 109 (College Algebra and Trig). A score of over 8 on battery two will place students into Math 221 (Calculus I). Math 105, 107, 108, 109 and Math 221 satisfy general education mathematics requirements.

A student cannot receive credit for any mathematics course based on his placement score. Advanced Placement Testing is available through the University of North Carolina or North Carolina Testing Services. For more information about the UNCP Department of Mathematics and Computer Science, visit: <http://www.uncc.edu/mathcs/>
For UNCP math course descriptions, visit: http://www.uncc.edu/catalog/pdf/math_cs.pdf (See pages 208-212 of the document.)



UNC Wilmington

All entering freshmen without a placement test exemption at the University of North Carolina at Wilmington take a mathematics placement test during Orientation. The test results, along with the student's intended major, will be used to determine the most appropriate Precalculus, Calculus, or General Education mathematics course for the student. The student's advisor will help in this selection.

Students who have received a score of 22 or better on the ACT Math Test or who have received a score of 2 or better on the Advanced Placement AB or BC Calculus Test are exempted from the placement test. These scores may be used to place students into the appropriate UNCW mathematics course.

continued . . .

UNC Wilmington, continued

The UNCW mathematics placement test covers Algebra I, Algebra II, Advanced Math and some Trigonometry. Students take the test on a computer (no computer skills are necessary!); it is multiple-choice and untimed; a non-graphing calculator is available on each computer. For more detailed placement information, see the web site: <http://www.uncw.edu/math/placement.html>

Most mathematics courses require minimum placement results before a freshman, without appropriate advanced placement or college transfer credit, can enroll in the course. Progress toward satisfying requirements for a major can be delayed if a student's mathematics skills are not brought up to the college level in a timely manner. It is important that students take a mathematics course during their senior year in high school so that skills do not become rusty!

For more information about the UNCW Department of Mathematics and Statistics, visit: <http://www.uncw.edu/math>
For UNCW math course descriptions, visit: <http://catalogue.uncw.edu/>. (Scroll down on the left and in box labeled "Search Catalogue" type in "math course descriptions.")



Western Carolina University

Undergraduate and transfer students admitted to Western Carolina University who wish to take mathematics beyond entry level courses* are placed according to the WCU Mathematics Placement Criteria show in the table.

WCU Mathematics Placement Criteria

Mathematics section of SAT (ACT) (less than 3 years old)	AP Calculus	Placement
<540 (23)		College Algebra (Math 130)
≥540 (23)	2	Precalculus (Math 146)
≥580 (25)	2	Calculus I (Math 153)
	AB>2	Calculus II (Math 255)
	BC>2	Calculus III (Math 256)

*There are no placement criteria for students taking only Math 101 - Mathematical Concepts, Math 130 - College Algebra or Math 170 - Applied Statistics.

For more information about the WCU Department of Mathematics and Computer Science, visit: <http://www.wcu.edu/academics/departments-schools-colleges/cas/casdepts/mathcsdept/index.asp>
For WCU math course descriptions, visit: <http://catalog.wcu.edu> (Select "Course Information" in the left column, type in the keyword "MATH," scroll down the page, and then click on individual math courses.)



Winston-Salem State University

The majority of entering freshmen at Winston-Salem State University take a mathematics placement exam during their orientation session prior to their first semester of college courses. The placement test given for mathematics is the ACCUPLACER Computerized Placement Test. The students are given the Elementary Algebra and the College-Level Mathematics parts of this placement test, both of which are calculator based.

Winston-Salem State University
MATH CUT-OFF SCORES AND COURSE PLACEMENT

Placement Test Taken	SCORE	Course Placement
Elementary Algebra.....	0 - 41	MAT 1306 (Basic Algebra)
Elementary Algebra.....	42 -	MAT 1311 (College Algebra), or MAT 1323 (Fundamentals of Mathematics)
College Level Math.....	10 - 59	MAT 1311 (College Algebra)
College Level Math.....	60 - 75	MAT 1312 (Precalculus I)
College Level Math.....	76 - 85	MAT 1312H (Honors version)
College Level Math.....	86 - 103	MAT 1313 (Precalculus II)
College Level Math.....	104 -	MAT 2317 (Calculus I)

For more information about the WSSU Mathematics Department, visit: <http://www.wssu.edu/casbe/academics/departments/math/default.aspx>
For WSSU math course descriptions, visit: <http://catalog.wssu.edu/content.php?catoid=15&navoid=790>. Scroll to bottom and click on page 9. Scroll to bottom of page 9 and click on desired mathematics course.



For more information, contact:

Ellen Hilgoe, NC EMPT Associate Director
Building 123, 1805 Charles Boulevard, Mail Stop 145,
East Carolina University, Greenville, NC 27858-4353

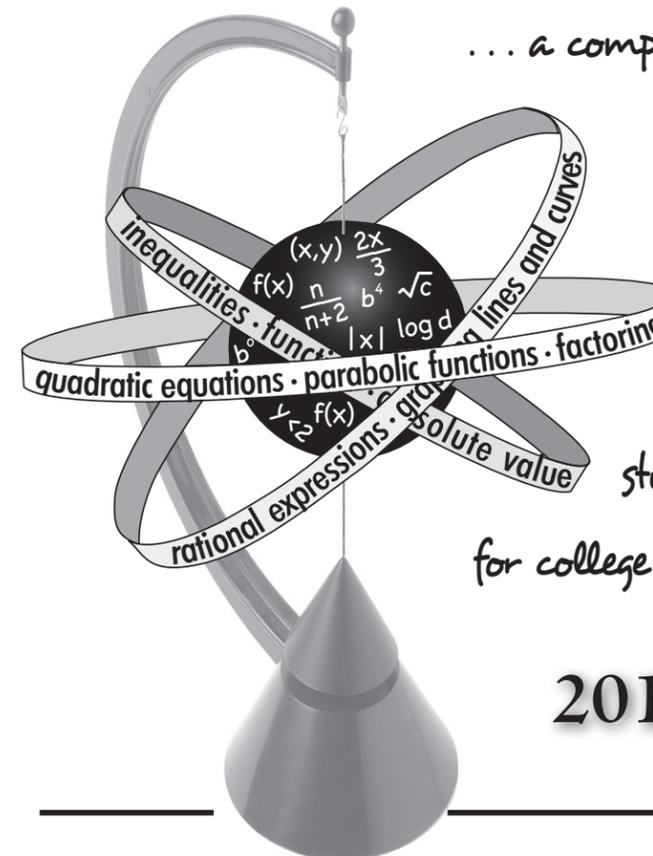
Phone: 252-328-6418 • Fax: 252-328-2166 • E-mail: ncempt@ncempt.org

A North Carolina Early Mathematics Placement Testing* Program



REFERENCE TOOL

Mathematics Placement Procedures at NC Community Colleges and UNC Constituent Institutions



... a comprehensive listing of placement procedures and preparation suggestions for students preparing for college entrance testing

2014-2015

*An early intervention and outreach program of the State of North Carolina.



North Carolina Community Colleges

Most students entering a community college in North Carolina take the North Carolina Diagnostic Assessment and Placement (NC DAP) Test during their summer orientation or prior to their first semester of college courses. Cut scores to enter college-level math courses are standardized across all 58 community colleges and test results are transferable.

Many students will benefit from brushing up on math skills prior to taking the NC DAP. The NC EMPT practice placement test helps students understand what skills must be improved so the appropriate degree-counting math course(s) can be taken successfully in college.

North Carolina community colleges are implementing a new placement policy, Multiple Measures of Placement, for incoming students that establishes a hierarchy of measures that colleges will use to determine students' readiness for college-level courses. High school students who meet the GPA or ACT/SAT benchmarks will be exempt from diagnostic placement testing and will be considered "college-ready" for gateway math and English courses. Some community colleges are currently using Multiple Measures of Placement (MMP). All North Carolina community colleges will implement MMP by the fall of 2015. Students should check with their local college for more details.



Appalachian State University

Entering students' SAT math score will be used for placement into college-level mathematics at ASU. A student wishing to place into a calculus course takes the online "Calculus Readiness Test" before coming to orientation. A student not placing into college-level mathematics must successfully complete MAT 0010, a 4-day-a-week course

that does not count towards graduation. Not placing into college-level mathematics delays a student since MAT 0010 must be successfully completed before a student can take any course with an ND designator. For example, a student must place into college-level mathematics or successfully complete MAT 0010 to take introductory courses in Biology, Chemistry, Computer Science, Economics, General Science, Geology, Mathematics, Physics/Astronomy, and other departments. Transfer students without SAT scores will be required to take an online placement test. Keeping your math skills current is critical.

For more information about the ASU Department of Mathematical Sciences, visit: <http://www.mathsci.appstate.edu>
For ASU math course descriptions, visit: http://www.registrar.appstate.edu/catalogs/13_14_undergrad/11_artsandsciences.pdf. (See pages 101-107.)



East Carolina University

Many entering freshmen at East Carolina University take a mathematics placement exam prior to their first college courses. Since Fall 2013, ECU has been using ACCUPLACER, a computer adaptive test, to place students into mathematics courses. A drop-down calculator window is provided by ACCUPLACER during the test. A score of 74 or

less on this test requires the student to enroll in a remedial math course. A score of 75 or more allows a student to enroll in MATH 1065 (College Algebra), 1066 (Applied Mathematics for Decision Making), or 2127 (Basic Concepts of Mathematics I), all of which count toward the general education mathematics requirement. Placement into freshman mathematics courses can also be based on SAT mathematics scores. For example, no placement test is required if a student's SAT I math score is 540 or above, OR if the SAT Subject Test – Mathematics Level 2 score is 400 or above, OR if the ACT math score is 20 or above. It is very important that students take a mathematics course during their senior year of high school so that skills are retained.

For more information about the ECU Mathematics Department, visit: <http://www.ecu.edu/math/>
For ECU math course descriptions, visit: <http://www.ecu.edu/cs-acad/Ugcat/CoursesM.cfm#math>
For ECU math placement test review questions, visit: <http://www.ecu.edu/math/> (In left column, click on "Math Placement Test.")



Elizabeth City State University

ECSU uses ACCUPLACER, a computer adaptive test, to determine appropriate placement of students into mathematics courses. The placement test is administered to new freshmen and transfer students during the summer orientation sessions and at other designated periods throughout the academic year. Students with SAT (Math)

scores greater than or equal to 500 are exempt from testing. The test items include topics involving arithmetic computations, algebra, precalculus and trigonometry. A score below 70 requires students to enroll in a developmental mathematics course, GE 109 (Introduction to College Mathematics), to further develop their mathematical abilities. Students scoring 70 or more may enroll in GE 115 (College Algebra). Students scoring 85 or more may enroll in GE 118 (Pre-Calculus). The calculator-based test contains multiple-choice questions that are untimed. High school students are strongly encouraged to enroll in a mathematics course during their senior year to provide a "smooth" transition into college level mathematics.

For more information about the ECSU Department of Mathematics and Computer Science, visit: <http://www.ecsu.edu/mcs>
For ECSU math courses descriptions, visit: <http://www.ecsu.edu/academics/catalogs/undergrad/7436.htm>



Fayetteville State University

Prior to enrollment in a math class, first-time freshmen and certain transfer students at Fayetteville State University (FSU) take a computer adaptive mathematics profile exam during their orientation session. University College makes every effort to place students in courses that correspond to their level of academic preparation. Advisors use

high school Grade Point Average (HS GPA), SAT scores, and scores on the Profile placement examination (administered during First Steps) as criteria.

FSU MATH PLACEMENT CRITERIA AND COURSE PLACEMENT

Placement Criteria	Course Placement
SAT-Math (SATM) Score >= 600 AND College-Level Math Score >= 100	MATH 142 – Calculus and Analytical Geometry I Primarily for math, computer science and science majors
SATM Score >= 600 OR College-Level Math Score >= 80-99	MATH 131 – Algebra and Trigonometry Primarily for math, computer science and science majors
SATM Score = 500-599 OR Algebra Profile Score >= 71	MATH 129 – Precalculus Mathematics I For math, computer science, biology, and chemistry majors. MATH 129 and MATH 130 together are equivalent to MATH 131
SATM Score = 500-599 OR Algebra Profile Score >= 71	MATH 123 – College Algebra Math, computer science, biology, and chemistry majors will not be placed in this course.
SATM Score < 500 AND Algebra Profile Score < 71	MATH 121 – Introduction to College Algebra

For more information about the FSU Department of Mathematics and Computer Science, visit: <http://www.unctfsu.edu/macs/>
For FSU math course descriptions, visit: <http://catalog.unctfsu.edu/ug/courses.htm> (Scroll down to courses beginning with MATH.)



NC A&T State University

Since the fall semester of 2011, all incoming freshmen or transfer students will be initially placed into an appropriate Math course based on their highest SAT or ACT Math, or SAT Subject Test – Math Level 2 scores. A student with an SAT Math score of less than 440, or SAT Subject Math Level 2 score of less than 430, or ACT Math Score of less than 16 will

be placed on MATH 099-Intermediate Mathematics, a remedial mathematics course offered by the Center for Academic Excellence. An SAT Math score between 440 and 480, or SAT Subject Math Level 2 score between 430 and 460, or ACT Math score between 16 and 18 allows the student to enroll in MATH 101-Fundamental Algebra and Trigonometry I (for non-STEM majors) or MATH 103-College Algebra and Trigonometry for Scientists and Engineers (for STEM majors) offered by the Mathematics Department. An SAT Math score between 490 and 540, or SAT Subject Math Level 2 score between 470 and 530, or ACT Math score between 19 and 21 requires that the student enroll in MATH 110-Precalculus for Engineering Sciences, or MATH 111-College Algebra and Trigonometry, both of which are offered by the Mathematics Department. An SAT Math score of 550 or higher, or SAT Subject Math Level 2 score of 540 or higher, or ACT Math score of 22 or higher allows the student to enroll in MATH 131-Calculus I also offered by the Mathematics Department.

If a student is not satisfied with his/her initial math course placement, s/he can take the Mathematics Department developed Algebra (for placement of MATH 099, 101, 103, and 111) or Precalculus (for placement of MATH 110 and 131) placement tests. The Algebra placement test contains 35 multiple choice questions, while the Precalculus placement test contains 30 multiple choice questions. The test time for both tests is limited to 50 minutes, and no calculator is allowed in either test. A score of less than 15 in the Math Dept. Algebra placement test requires that the student enroll in MATH 099. A score between 15 and 19 in the Math Dept. Algebra placement test allows the student to enroll in MATH 101 if the student is a non-STEM major or MATH 103 if the student is a STEM major. A score of 20 or higher in the Math Dept. Algebra placement test will place the student in MATH 111. A score between 13 and 16 in the Math Dept. Precalculus placement test requires that the student enroll in MATH 110. A score of 17 or higher allows the student to enroll in MATH 131.

For more information about the NC A&T Department of Mathematics, visit: <http://www.ncat.edu/academics/schools-colleges1/cas/math/>
For NC A&T math course descriptions, visit: <http://www.ncat.edu/academics/schools-colleges1/cas/math/courses.html>



NC Central University

Undergraduates admitted to North Carolina Central University take non-calculator based mathematics placement tests before registering for classes (unless they are transferring in appropriate credits). Students with a 480 or higher on the SAT-Math section or a 20 or higher on the ACT are exempt from placement testing. Students with less than 480 on the SAT-Math

section or less than 20 on the ACT take an ACCUPLACER assessment (untimed) on elementary algebra and on intermediate algebra. Placement is then made to Introductory College Algebra or to College Algebra. Placement testing is available at the beginning of each semester, during the Early Orientation Programs, and by appointment.

To prepare for the mathematics placement tests, you should review materials and work problems relating to the following topics: arithmetic calculations and algebraic operations; algebraic expressions involving polynomials; exponents and logarithms; graphs of functions; linear and quadratic equations; systems of equations; and

NC Central University, continued

computation of areas, perimeters, surface areas and volume. It is desirable that students take a mathematics course in their senior year in high school. Requirements for a college major may be delayed if mathematics skills are below the expected level.

For more information about the NCCU Department of Mathematics and Computer Science, visit: http://www.cs.nccu.edu/math_cs/index.php
For NCCU math course descriptions, visit: http://www.cs.nccu.edu/math_cs/courses.php#math



NC State University

Entering freshmen at NC State are strongly encouraged to have taken the calculator based SAT Subject Test – Mathematics Level 2 placement test before their summer orientation session prior to their first fall semester. A score of less than 430 on this test requires that the student enroll in MA 101 (Intermediate

Algebra)*, which does not count towards any degree. A score of 550 or better allows the student to enroll in MA 141 (Calculus I), which is the first course of the three-semester calculus sequence. In addition, upon admission and prior to registration each entering freshman must take the NC State University online skills test. Students who have not taken the SAT Subject Test must use their online skills test score. The SAT Subject Test is preferred.

Between one-fourth and one-third of the students entering NCSU have taken the AP Calculus AB exam or the AP Calculus BC exam and have received placement based on their scores.

For more information about the NCSU Department of Mathematics, visit: <http://www.math.ncsu.edu>
For NCSU prerequisites and math course descriptions, visit: http://www2.acs.ncsu.edu/reg_records/crs_cat/dir_MA.html (Then click on the math course number for description.)

*MA 101 can only be taken at NCSU during the first and second summer sessions.
MAT 161 is an equivalent course offered at NC Community Colleges.



UNC Asheville

Each incoming UNC-Asheville student is asked to visit the Math Placement website before his/her summer registration appointment. This can be done at home or on campus by visiting the Math Department Website: <http://math.unca.edu/>. Click *For Students* in the blue menu on the right and then select *Math*

Placement in the drop down menu. The website gives the answers to important questions regarding course requirements. It customizes the information needed for students to make the best course selection for their individual plans by asking students about their intended major and math background. We expect that the majority of new students will be able to click their way through the website to determine which math course to take, without ever needing to take a math placement test. However, there are some individual circumstances where a placement test is crucial. Consequently, a 20-question, multiple-choice, calculator-based exam is built into the site. The website supplies all of the placement information directly to the students to help them make the most informed math course decision possible. Obviously, it is in each student's best interest to do the website test without help from anyone else. Calculus course sections will administer pretests at the start of the semester to check that these students are enrolled in the most appropriate course.

For more information about the UNCA Department of Mathematics, visit: <http://math.unca.edu/>
For UNCA math course descriptions, visit: <http://registrar.unca.edu/course-catalogs>. Click on the current courses catalog (at the top of the list) and go to pp. 217-223 within the catalog.



UNC Chapel Hill

Most entering students are required to have results from the SAT Math Level 2 subject test or the ACT math test prior to placement in a math course at UNC-CH. This calculator based exam is NOT given on campus and should be taken as soon after a prospective student's precalculus course as possible, and certainly

before arriving at UNC-CH. A score greater than or equal to 520 on the SAT math subject test or 27 on the ACT math test exempts the student from Math 110 (College Algebra). Math 110 counts as elective hours towards graduation, but does not fulfill the mathematics requirement. Scores ranging from 520 through 590 allow the student to enroll in a number of mathematical science courses, including Math 117 (Finite Mathematics), 118 (Selected Topics in Mathematics), 152 (Calculus for Business and Social Sciences), 130 (Trigonometry and Analytic Geometry), Stor 151 (Statistics/Data Analysis), Comp 110 (Introduction to Programming), and a few others, all of which satisfy the general education requirement. A score greater than or equal to 600 on the SAT Math Level 2 subject test or 29 on the ACT math test is needed to place into Math 231 (Calculus I).

For more information about the UNC-CH Mathematics Department, visit: <http://www.math.unc.edu/>
For UNC-CH math course descriptions, visit: <http://www.math.unc.edu/for-undergrads/course-descriptions>

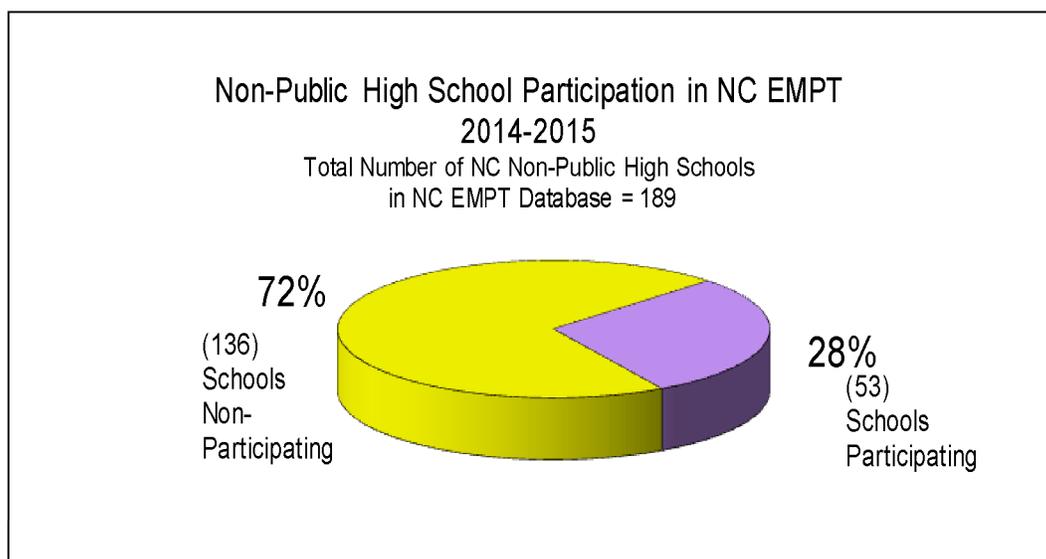
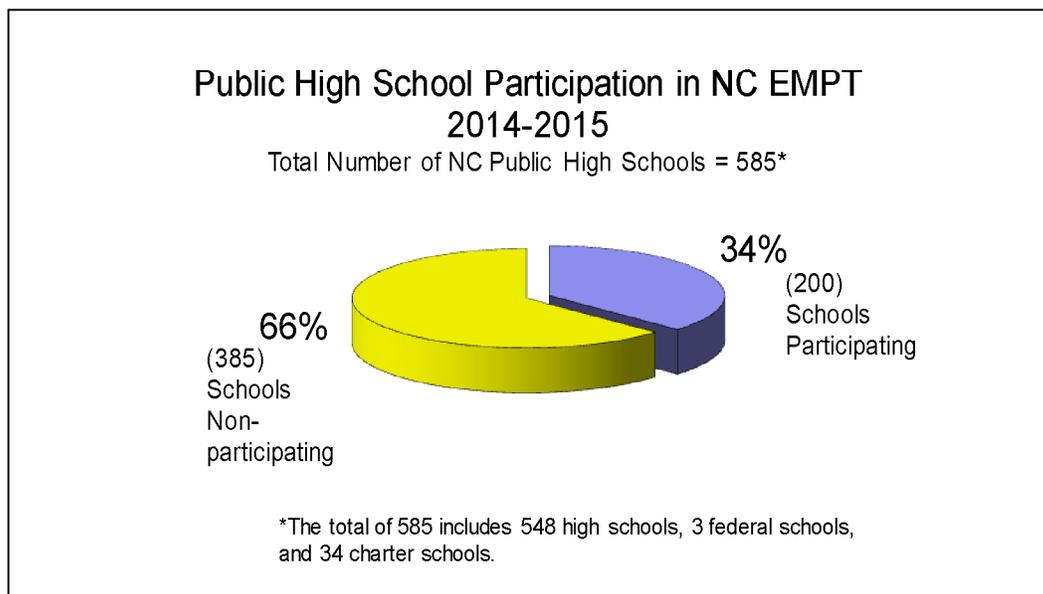
*For those students who have never had trigonometry, the SAT Subject Test – Mathematics Level I is acceptable; however, the student cannot place into Math 231 with this version of the SAT.

continued . . .

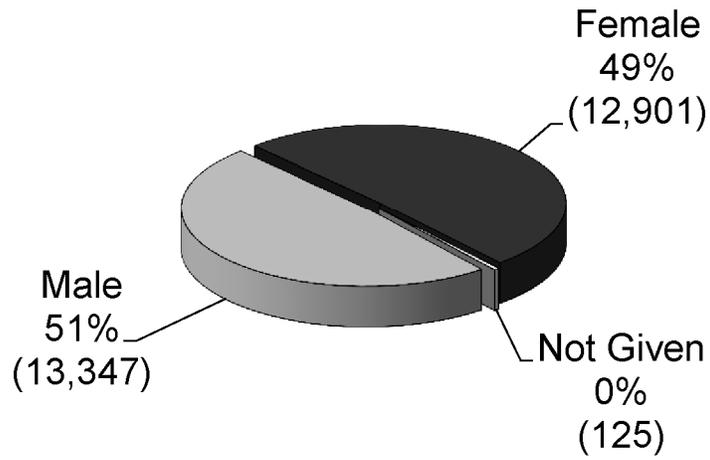
Graphics Describing Testing Results from the 2014-2015 Version of the NC EMPT Test

A special thanks is given to David Hodges, our database consultant, for his time, effort, and wisdom in creating these graphs. He has been a loyal and vital member of the NC EMPT team since 1997.

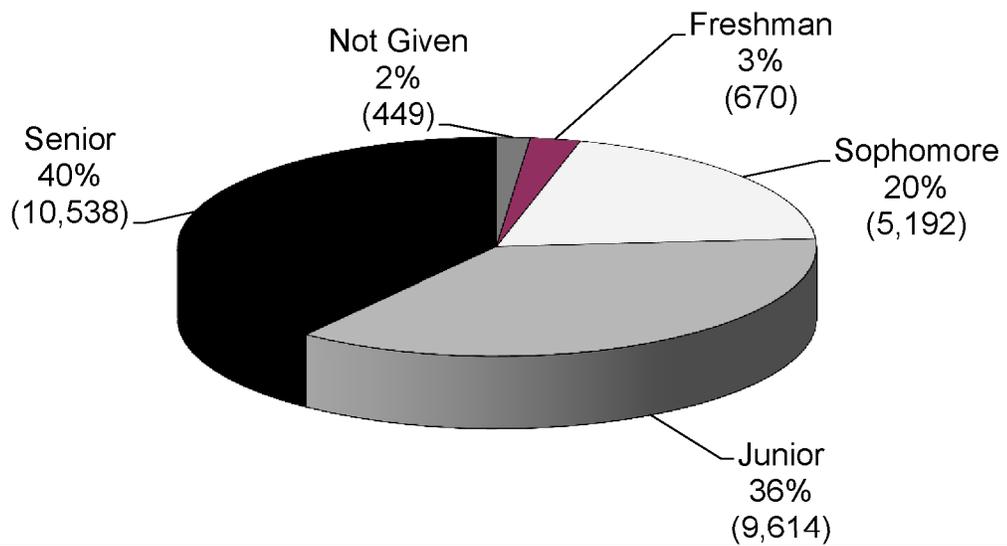
High School Demographics:



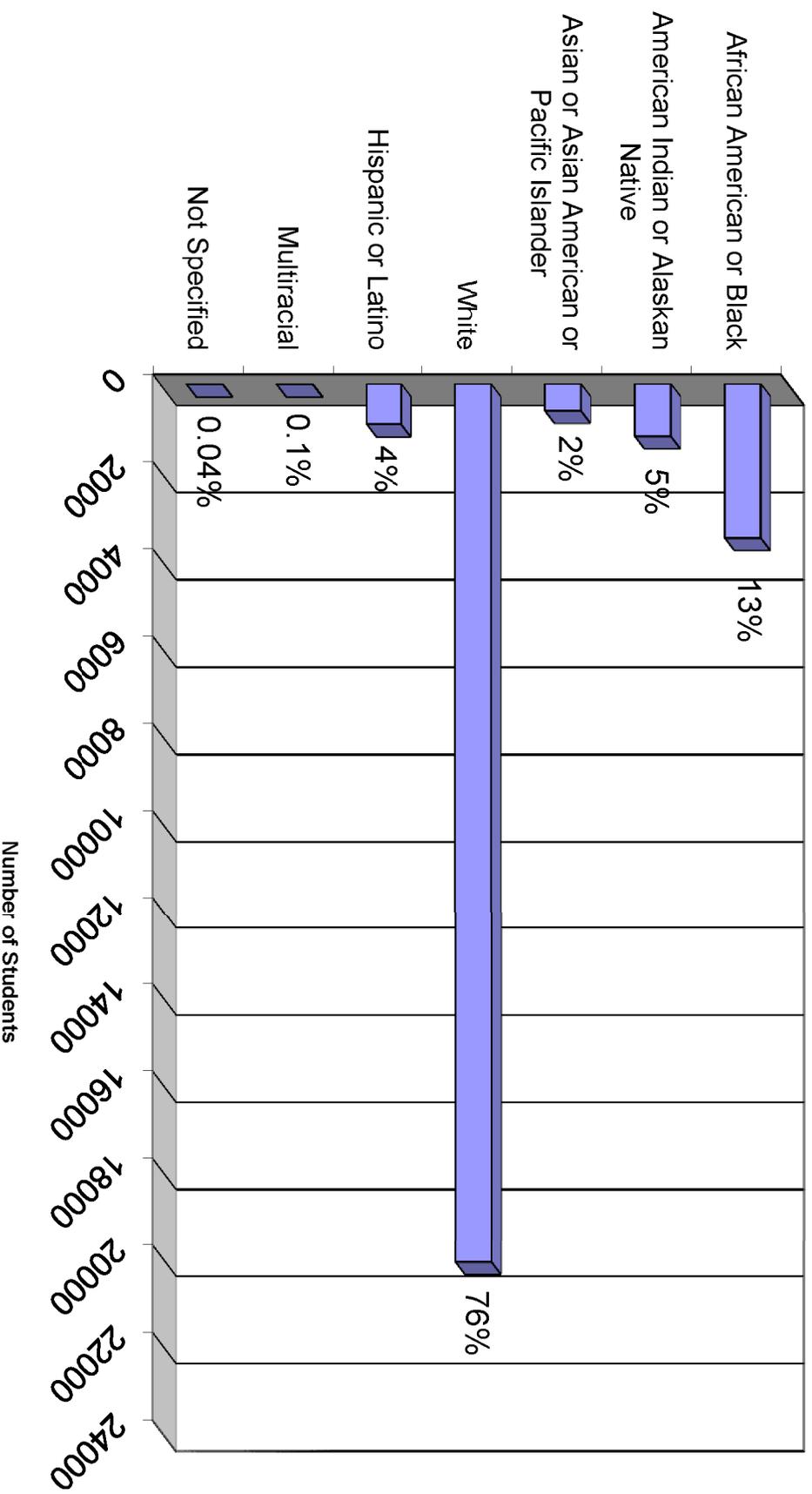
Sex of Participating Students 2014-2015



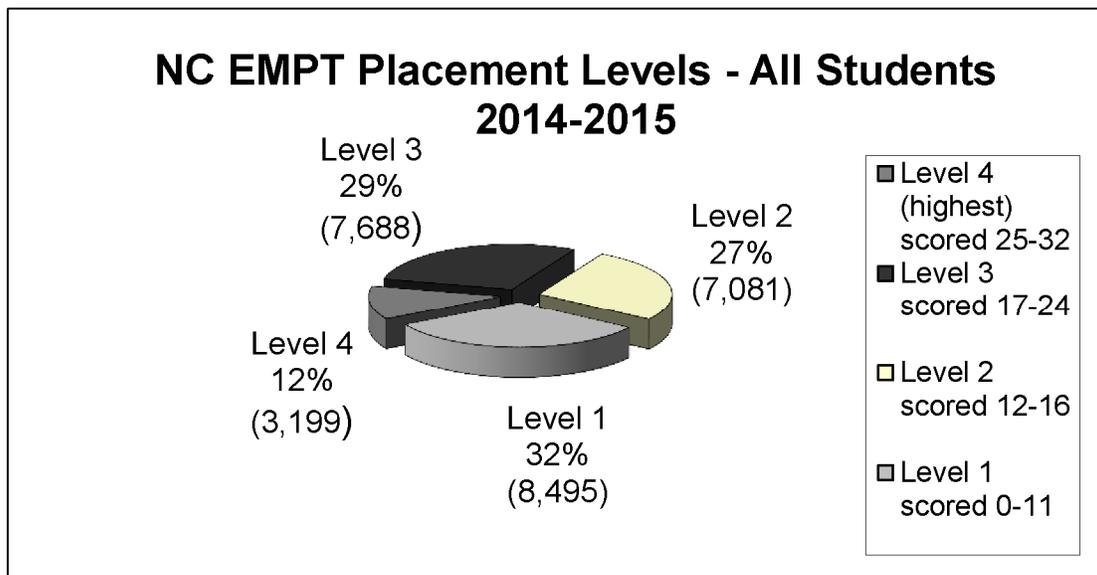
Grade Level of Participating Students 2014-2015



Race/Ethnicity of Participating Students 2014-2015



2014-2015 Placement Test Results:



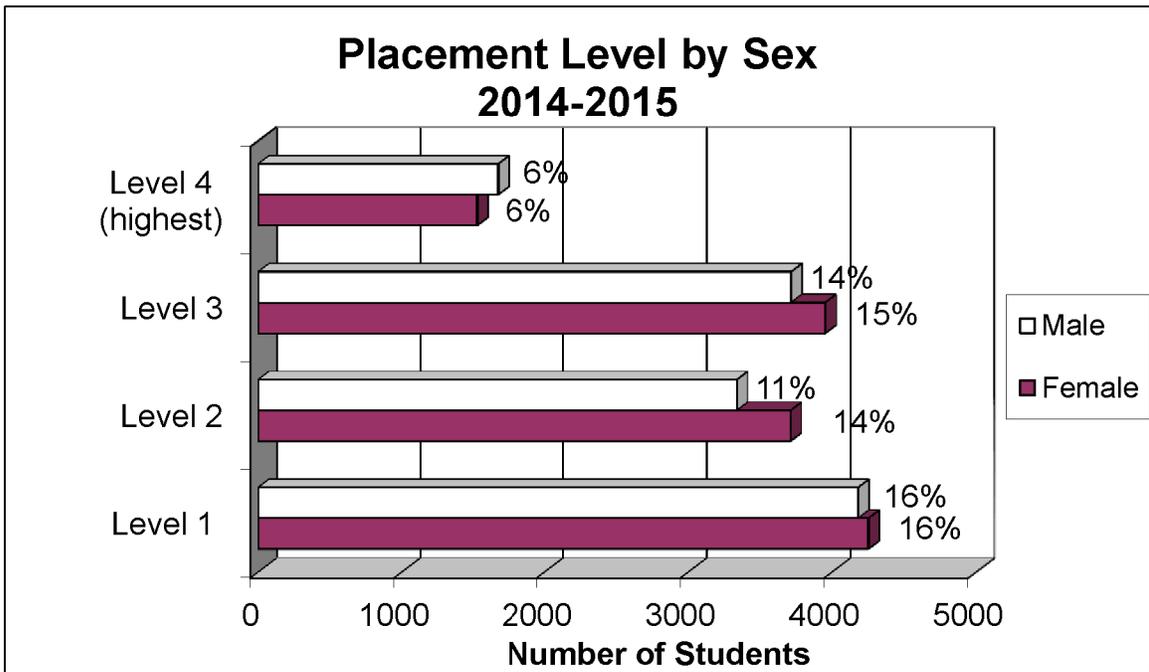
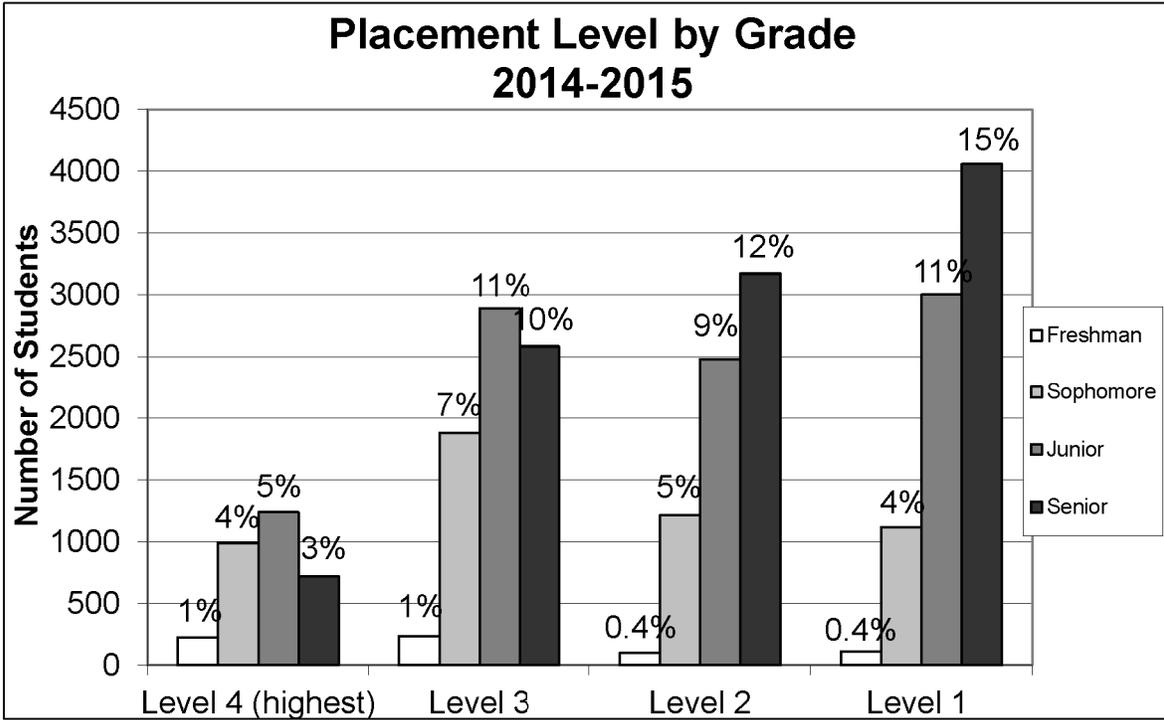
Explanations of Suggested Levels of the NC EMPT Program, 2014-2015

Level 1: A Level 1 score indicates the student is not ready for college-level math courses and must take remedial mathematics.

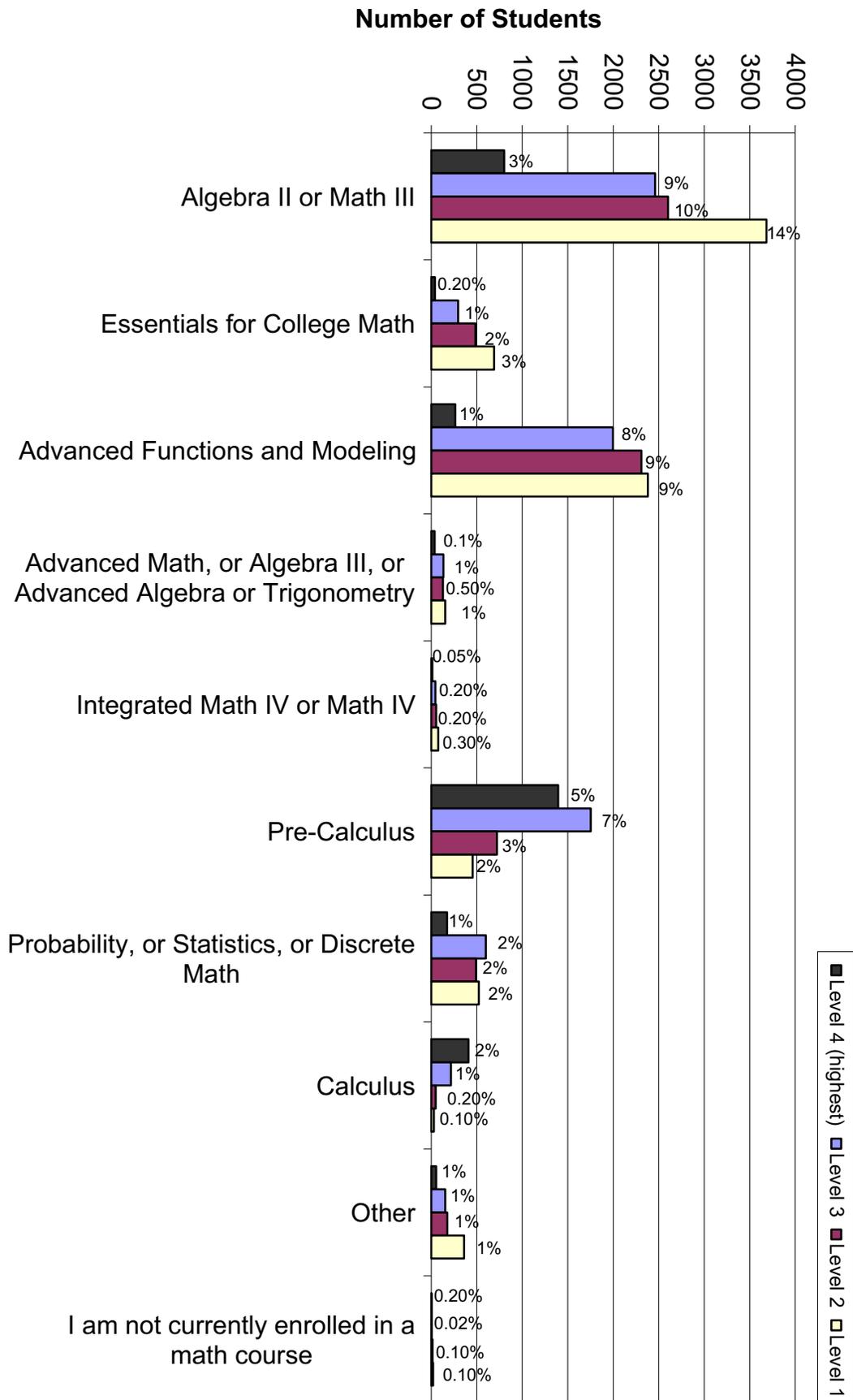
Level 2: A Level 2 score indicates the student must take remedial mathematics in some choices of major.

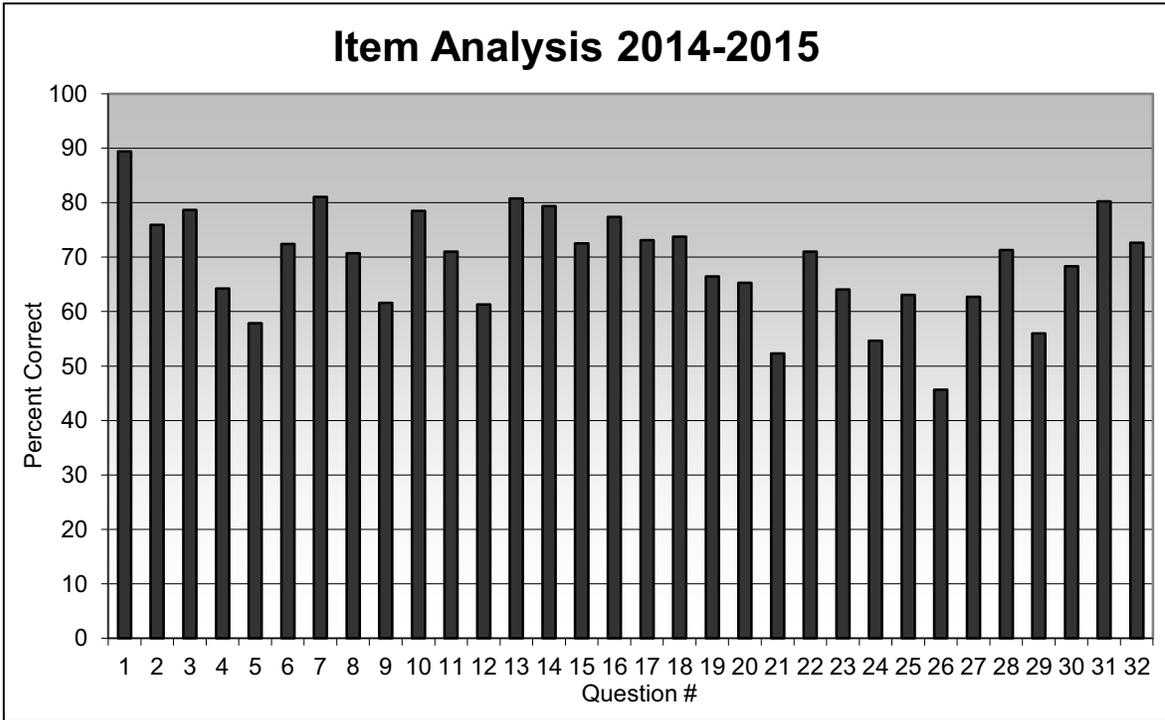
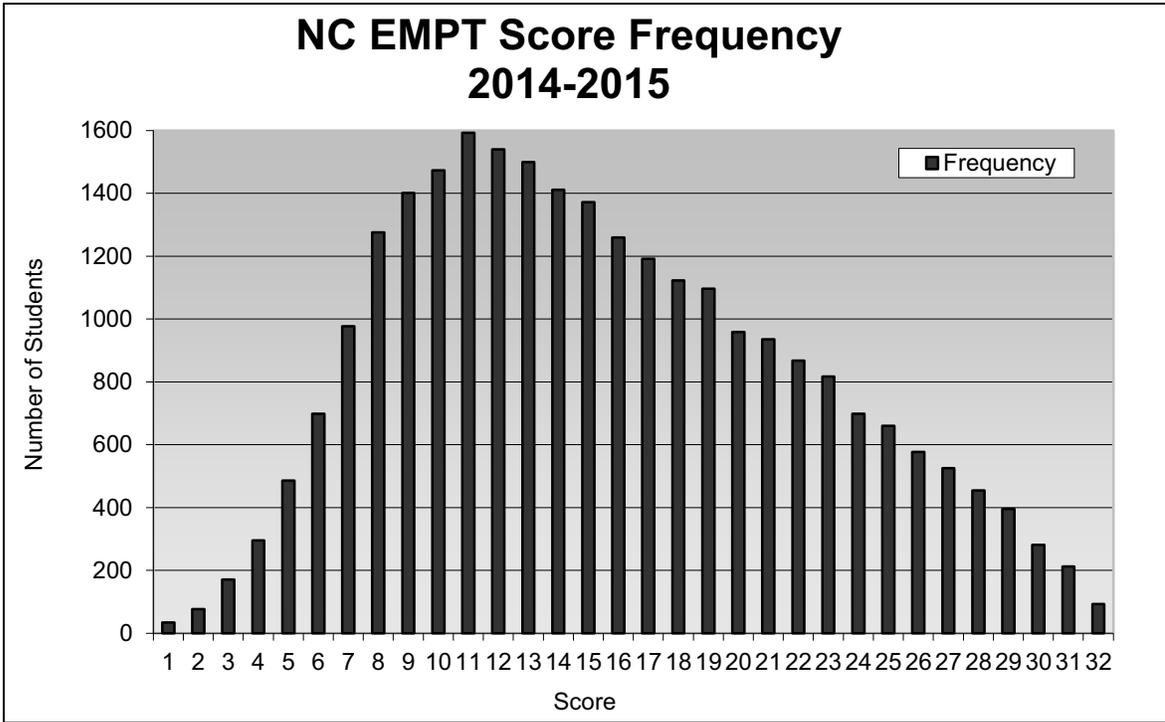
Level 3: A Level 3 score indicates the student is ready for a beginning-level college mathematics course. However, a Level 3 score may be considered borderline at some universities for students planning to major in math, science, technology or engineering.

Level 4: A Level 4 score indicates a solid high school preparation for college-level mathematics. Some universities may allow a student scoring at Level 4 on their math placement test to skip the first college math course, depending on that student's choice of major.



Placement Level by Current Math Course 2014-2015





Item Analysis by Decreasing %, 2014-2015

Question	Objective	# Correct	% Correct
1	order fractions from least to greatest	23855	89.51
7	solve word problem: proportion	21651	81.24
13	factor a polynomial	21594	81.02
31	solve system of linear equations	21422	80.38
14	find median given data set	21181	79.47
3	simplify using laws of exponents	21034	78.92
10	find measure of angle of triangle	20973	78.69
16	solve formula given values	20683	77.6
2	solve equation using distributive property	20298	76.16
18	simplify a complex fraction	19710	73.95
17	recognize function given data	19549	73.35
32	solve word problem: quadratic function	19433	72.91
15	identify equation of translated function	19396	72.78
6	solve linear inequality	19378	72.71
28	solve word problem: right triangle trig	19074	71.57
22	subtract rational expressions	19011	71.33
11	evaluate function	18975	71.2
8	simplify radical and find reciprocal	18926	71.01
30	find domain of function given graph	18291	68.63
19	identify equation of line given two points	17813	66.84
20	find side of special right triangle	17488	65.62
4	find slope of line given equation	17197	64.52
23	square a binomial	17150	64.35
25	compare areas of two circles	16866	63.28
27	solve quadratic equation	16812	63.08
9	solve word problem: units of measure	16502	61.92
12	solve absolute value equation	16422	61.62
5	find volume of cube	15508	58.19
29	solve word problem: rate, time, distance	15009	56.31
24	find inverse of relation	14620	54.86
21	solve word problem: percent increase	14028	52.63
26	simplify using laws of exponents	12268	46.03

NC EMPT Test Results, 2014-2015 Test Version

Total Students Tested: 26,464
(paper and pencil test)
Mean Score: 15.6 out of 32, or 49%

Placement Levels (#1 lowest - #4 highest)
Level 1: 32% Level 3: 29%
Level 2: 27% Level 4: 12%

This test is calculator optional. The current calculator usage policy on the actual math placement test for each UNC institution and NC community college is shared with high school math teachers prior to testing.

Correct answers are circled below. The percent of students choosing each answer is found in an italicized font below each answer. The last percentage listed for each question represents the number of students who did not answer the question.

Select the one best answer to each question. Place each answer on your bubble sheet.

1. Write these fractions in order from least to greatest: $\frac{2}{3}, \frac{3}{4}, \frac{5}{8}, \frac{4}{9}$ *Not answered*

A. $\frac{2}{3}, \frac{5}{8}, \frac{4}{9}, \frac{3}{4}$

1.88%

B. $\frac{4}{9}, \frac{2}{3}, \frac{5}{8}, \frac{3}{4}$

9.70%

C. $\frac{4}{9}, \frac{5}{8}, \frac{2}{3}, \frac{3}{4}$

82.68%

D. $\frac{5}{8}, \frac{3}{4}, \frac{2}{3}, \frac{4}{9}$

3.32%

E. $\frac{2}{3}, \frac{4}{9}, \frac{3}{4}, \frac{5}{8}$

2.24%

0.18%

2. Simplify: $-[x + 2(3x - 1) - 4]$

A. $-7x + 5$

7.74%

B. $-7x + 6$

59.35%

C. $-7x - 6$

19.94%

D. $-6x + 6$

9.02%

E. $-7x + 10$

2.10%

1.85%

3. Which of the following is a simplified form of $(2^3 a^8)^2$?

A. $16a^{16}$

6.79%

B. $64a^{10}$

18.56%

C. $64a^{16}$

64.06%

D. $16a^{10}$

5.18%

E. $32a^{16}$

4.82%

0.59%

4. The graph of the line with equation $-3x + 4y = 17$ intersects the x -axis when $x = ?$

A. $\frac{17}{3}$

9.64%

B. $-\frac{17}{3}$

40.33%

C. $\frac{4}{3}$

13.24%

D. $-\frac{4}{3}$

16.29%

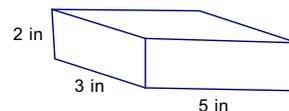
E. $\frac{17}{4}$

18.20%

Not answered

2.30%

5. This block of wood is a rectangular prism. What is the surface area of the block?



A. 16 in^2

3.35%

B. 25 in^2

3.65%

C. 30 in^2

57.86%

D. 38 in^2

5.14%

E. 62 in^2

29.17%

0.83%

6. If $-3x + 13 < -14$, then

A. $x > 9$

54.39%

B. $x < 9$

25.58%

C. $x < \frac{1}{3}$

6.87%

D. $x > -\frac{1}{3}$

6.28%

E. $x < -9$

6.10%

0.78%

7. A breakfast cereal maker increased the size of one of its cereal boxes so that it holds 20% more cereal. If the original box held 15 ounces of cereal, how many ounces of cereal does the new box hold?

A. 3

14.54%

B. 7.5

4.00%

C. 18

67.69%

D. 20

4.86%

E. none of these

8.08%

0.83%

8. A man 6 feet tall stands next to a child that is 4 feet tall. What is the length, in feet, of the child's shadow if the man's shadow is $3\frac{1}{2}$ feet long?

A. 2

14.07%

B. $\frac{7}{3}$

51.93%

C. $\frac{5}{2}$

21.78%

D. $\frac{8}{3}$

7.12%

E. 3

3.54%

1.56%

9. Simplify the expression: $\frac{1}{3+\sqrt{5}}$

Not answered

A. $\frac{3-\sqrt{5}}{8}$

12.62%

B. $\frac{3+\sqrt{5}}{13}$

11.65%

C. $\frac{\sqrt{5}}{8}$

28.34%

D. $\frac{3-\sqrt{5}}{4}$

35.83%

E. $-\frac{3\sqrt{5}}{2}$

8.48%

3.08%

10. In the figure below, the measure of $\angle BAC = 30^\circ$ and the measure of $\angle ACD = 135^\circ$. Find the measure of $\angle ABC$.

A. 15°

18.38%

B. 45°

8.07%

C. 105°

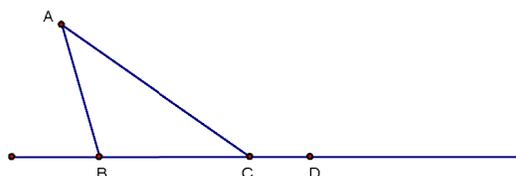
63.97%

D. 110°

5.37%

E. 115°

3.48%



0.73%

11. If $f(x) = \frac{x+3}{x-1}$, then $f(a+1)$ is equal to

A. $\frac{a+4}{a}$

50.84%

B. $\frac{a+3}{a-1}$

21.46%

C. 5

5.59%

D. 4

14.36%

E. $\frac{4}{a}$

5.12%

2.63%

12. The absolute value equation $|x-2|=3$ has two solutions. What is the sum of these solutions?

A. -4

4.00%

B. -1

17.02%

C. 0

17.02%

D. 4

35.67%

E. 6

23.37%

2.92%

13. What is the value of the expression $(x+1)^{-\frac{2}{3}}$ if $x=7$?

A. -4

4.26%

B. $-\frac{16}{3}$

12.47%

C. $-\frac{1}{4}$

7.58%

D. $\frac{1}{4}$

69.51%

E. 4

4.52%

1.66%

14. The scores on a test were 75, 100, 90, 85, and 75. Which statement about the scores is true?

- A. The range is greater than the mode. 7.97% *Not answered*
 B. The mode is greater than the median. 5.97%
 C. The mode is greater than the mean. 6.73%
 D. The mean is less than the median. 12.33%

E. The mean and median are the same. 65.69% 1.31%

15. Which of the following is the equation of the parabola whose graph is shown below?

A. $y = -2x^2 + 2$

55.71%

B. $y = -x^2 + 2$

26.85%

C. $y = 2x^2 - 2$

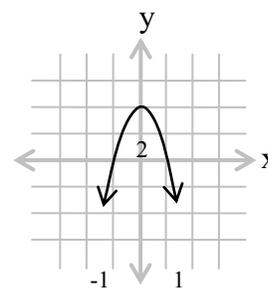
7.94%

D. $y = x^2 + 2$

5.97%

E. $y = -2x^2 - 2$

2.38%



1.15%

16. The length L of a spring is given by the formula $L = \frac{4}{7}F + 9$, where F is the applied force. What force will produce a length of 14?

A. $2\frac{6}{7}$

9.75%

B. $8\frac{3}{4}$

62.07%

C. $13\frac{1}{7}$

11.20%

D. $22\frac{1}{4}$

6.30%

E. $40\frac{1}{4}$

8.49%

2.19%

17. The cost of shipping computers from a warehouse is given in the table below:

number of computers	x	50	75	100	125
cost in dollars	y	1700	2500	3300	4100

Which kind of function below best models this data?

A. quadratic

12.48%

B. rational

8.96%

C. cubic

5.23%

D. linear

55.96%

E. exponential

15.59%

1.78%

18. Which of the following is an equivalent form of $\frac{x}{4} + \frac{2}{3}$? Not answered

A. $\frac{x+2}{7}$ B. $\frac{x+2}{12}$ C. $\frac{3x+8}{12}$ D. $\frac{4x+6}{12}$ E. $\frac{3x+8}{7}$

21.56%
13.23%
54.35%
4.10%
5.08%
1.68%

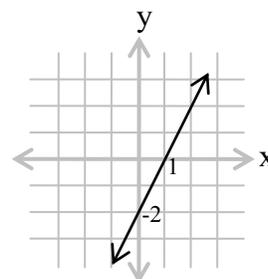
19. The equation of the given graphed line is

A. $x + 2y = -2$ B. $x - 3y = -6$

18.26% *6.97%*

C. $2x + y = -2$ D. $x + 3y = 6$

21.84% *5.78%*



E. $2x - y = 2$

44.48% *2.67%*

20. Solve this system of linear equations: $\begin{cases} 2x - y = -8 \\ -5x + 2y = 17 \end{cases}$ The y -value of the solution is

A. -10 B. -6 C. -1 D. 6 E. 10

7.77% *18.65%* *18.79%* *41.65%* *8.78%* *4.36%*

21. In the given table, the number of tigers at Zoo A is shown for various years. What is the percentage increase from 1990 to 2000?

Tiger Population at Zoo A

Year	1970	1980	1990	2000
Number of Tigers	0	8	4	12

A. 50% B. 100% C. 150% D. 200% E. 300%

10.63% *9.65%* *16.48%* *21.44%* *38.97%* *2.83%*

22. The diameter of the smallest visible particle is 0.0012 in. Write this number in scientific notation.

A. 12×10^{-4}

17.58%

B. 1.2×10^{-3}

49.07%

C. 0.12×10^{-2}

15.26%

D. 1.2×10^3

11.25%

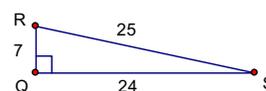
E. 12×10^4

4.85%

1.99%

Not answered

23. In the given right triangle, $\triangle QRS$, which equation would correctly find the angle of elevation from point S to point R?



A. $\tan S = \frac{7}{24}$

40.19%

B. $\sin S = \frac{24}{25}$

20.72%

C. $\cos S = \frac{24}{7}$

13.65%

D. $\cos S = \frac{7}{24}$

10.72%

E. $\tan S = \frac{24}{7}$

10.46%

4.26%

24. What is the equation of the inverse of the function $x + 2y + 3 = 0$?

A. $y = -\frac{1}{2}x - \frac{3}{2}$

22.93%

B. $y = -2x - 3$

24.92%

C. $-x - 2y - 3 = 0$

33.49%

D. $x + 2y + 3 = 0$

5.94%

E. $2x - y + 3 = 0$

8.57%

4.15%

25. Find the area of the shaded region of the circle in square inches. Leave your answer in terms of π .

A. 2π

14.83%

B. 4π

39.03%

C. 8π

17.56%

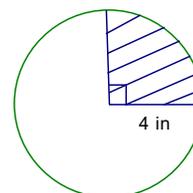
D. 10π

4.10%

E. 16π

20.83%

3.65%



26. Solve for x : $2^x = \frac{2^a 2^b}{2^c}$.

Not answered

A. $2^{\frac{ab}{c}}$

24.88%

B. 2^{ab-c}

16.12%

C. $\frac{ab}{c}$

30.14%

D. $\frac{a+b}{c}$

14.32%

E. $a+b-c$

9.76%

4.78%

27. How high up on a building will a 15-foot ladder reach if the bottom of the ladder is placed 5 feet from the base of the building?

A. $2\sqrt{10}$ ft

9.84%

B. $\sqrt{55}$ ft

6.91%

C. 10 ft

24.38%

D. $10\sqrt{2}$ ft

37.96%

E. $5\sqrt{10}$ ft

16.40%

4.51%

28. Solve the quadratic equation $2x^2 = 8x$. Name the larger of the two solutions.

A. $x = -4$

6.51%

B. $x = -2$

7.09%

C. $x = 0$

9.26%

D. $x = 2$

19.82%

E. $x = 4$

52.40%

4.92%

29. Find the range of the function in the given graph.

A. $y \geq 0$

26.23%

B. $y \geq 2$

27.55%

C. $y > 0$

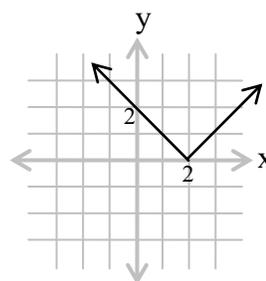
8.34%

D. $x \geq 0$

6.28%

E. all real numbers

26.73%



4.87%

30. The function $f(t) = -5t^2 + 20t + 60$ models the approximate height of an object t seconds after it is launched. How many seconds does it take to hit the ground?

A. 2

9.30%

B. 5.5

15.38%

C. 6

48.06%

D. 12.5

13.12%

E. 60

7.94%

6.20%

-
31. If the coordinates of one endpoint of a line segment are $(-4, 3)$ and the coordinates of the midpoint of the segment are $(0, 0)$, what are the coordinates of the other endpoint of the segment?

A. $(4, -3)$

66.26%

B. $(-4, -3)$

10.16%

C. $(-4, 3)$

11.42%

D. 5

3.70%

E. $(-2, 1.5)$

3.64%

Not answered

4.82%

-
32. If x dollars is invested in a savings account earning 2% annual interest and y dollars is invested in another savings account earning 3% annual interest, then which of the following expressions represents the annual interest earned, in dollars, for both accounts combined after one year?

A. $0.05(x + y)$

9.20%

B. $2x + 3y$

8.84%

C. $5(x + y)$

7.66%

D. $0.2x + 0.3y$

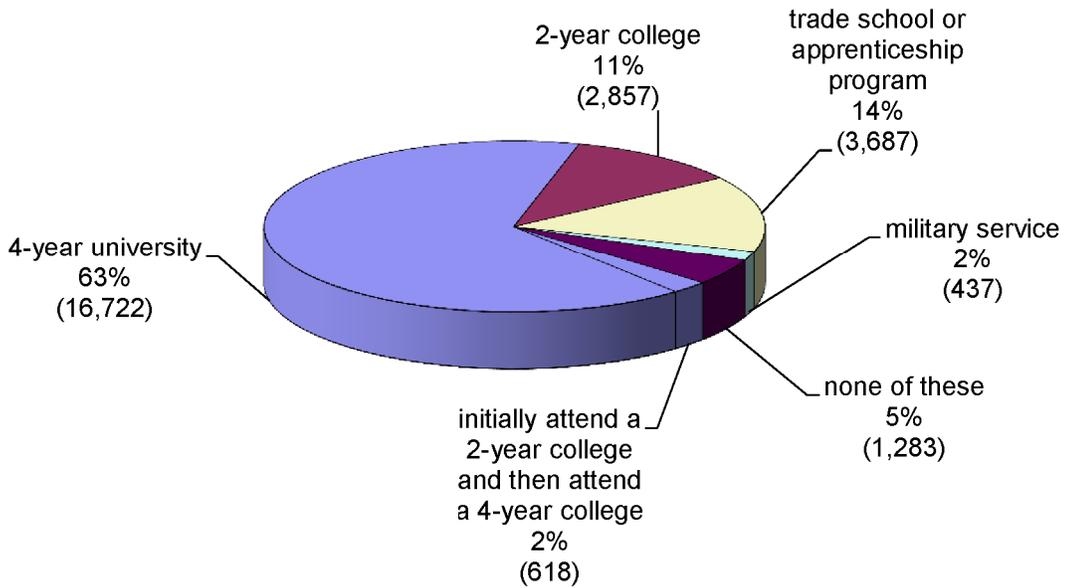
14.64%

E. $0.02x + 0.03y$

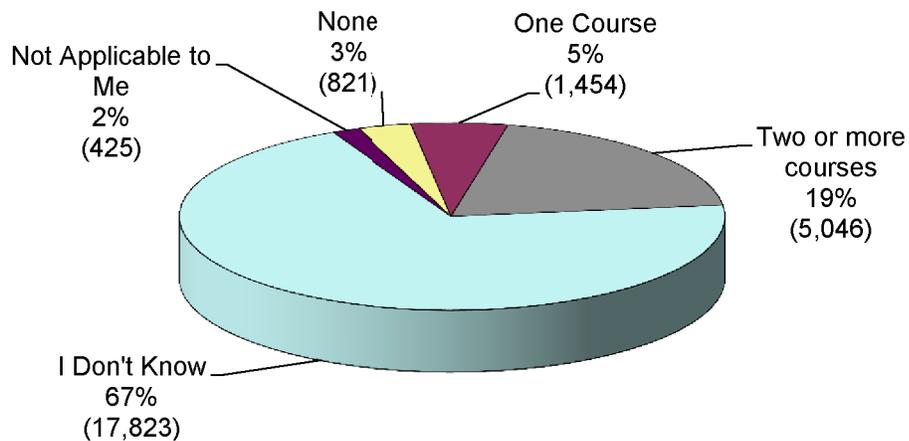
54.30%

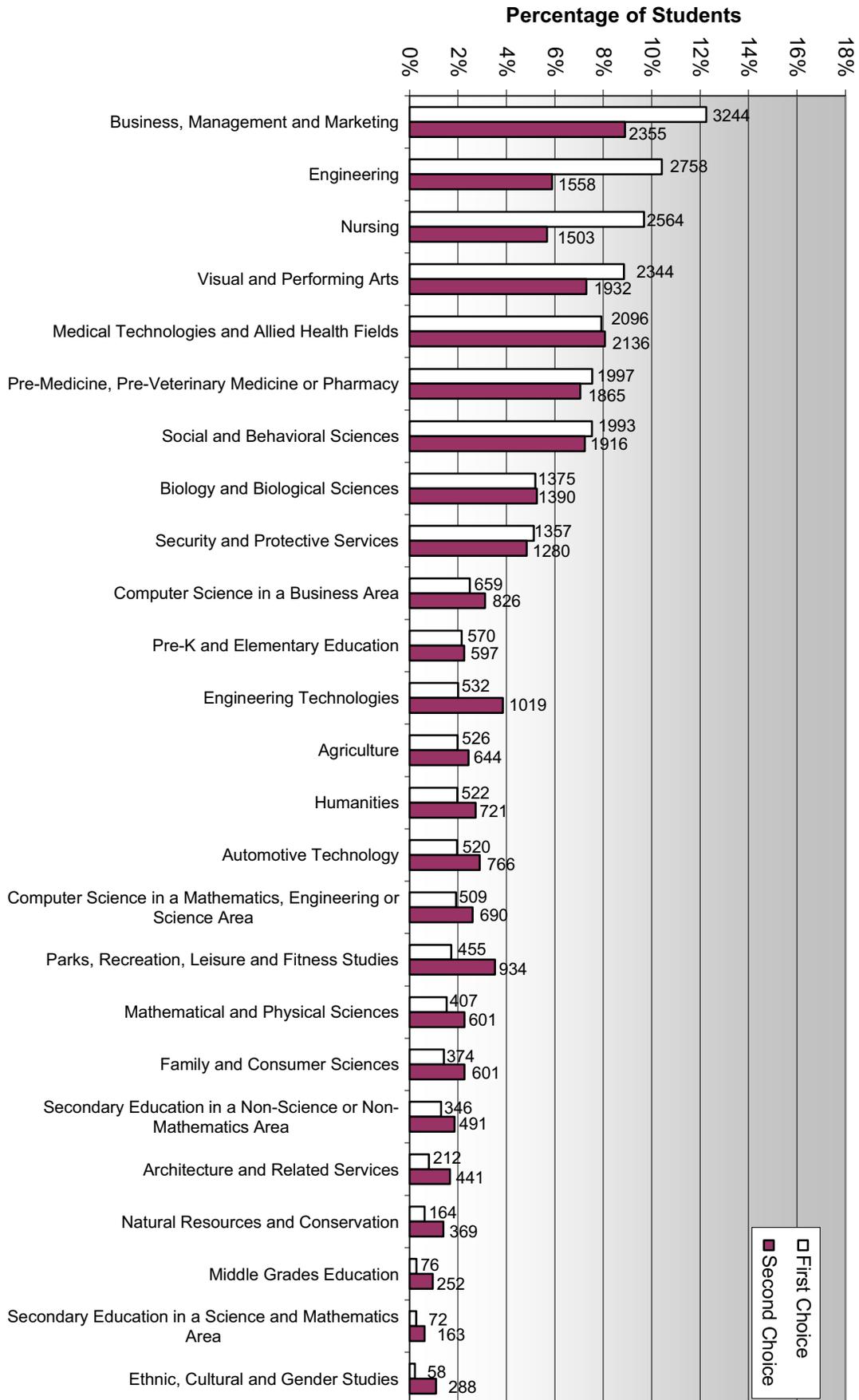
5.36%

Plans After High School 2014-2015



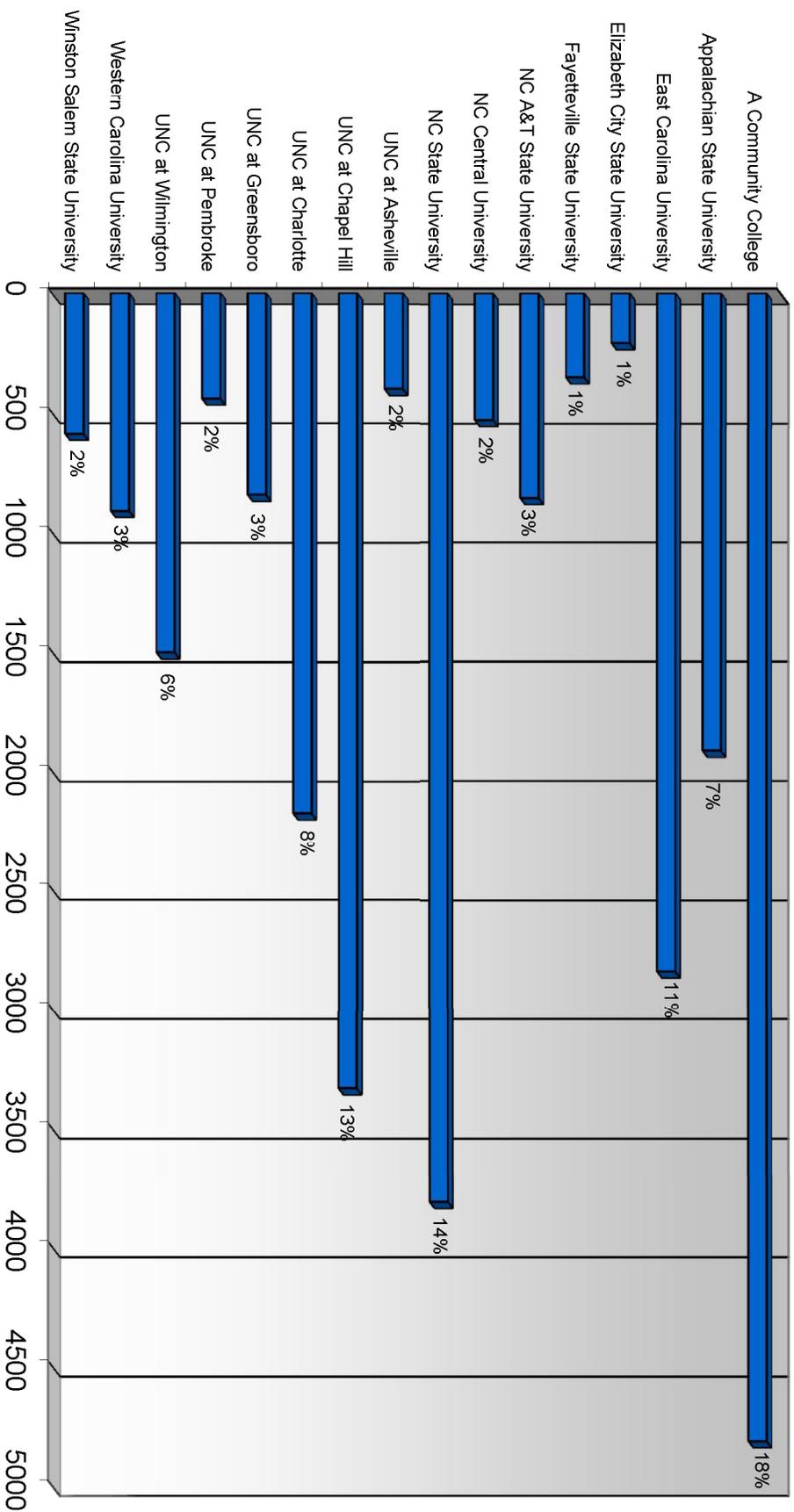
Number of College-Level Math Courses Required for First College Major 2014-2015



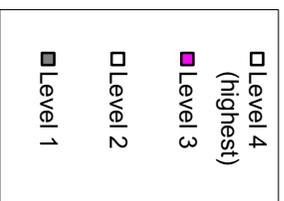
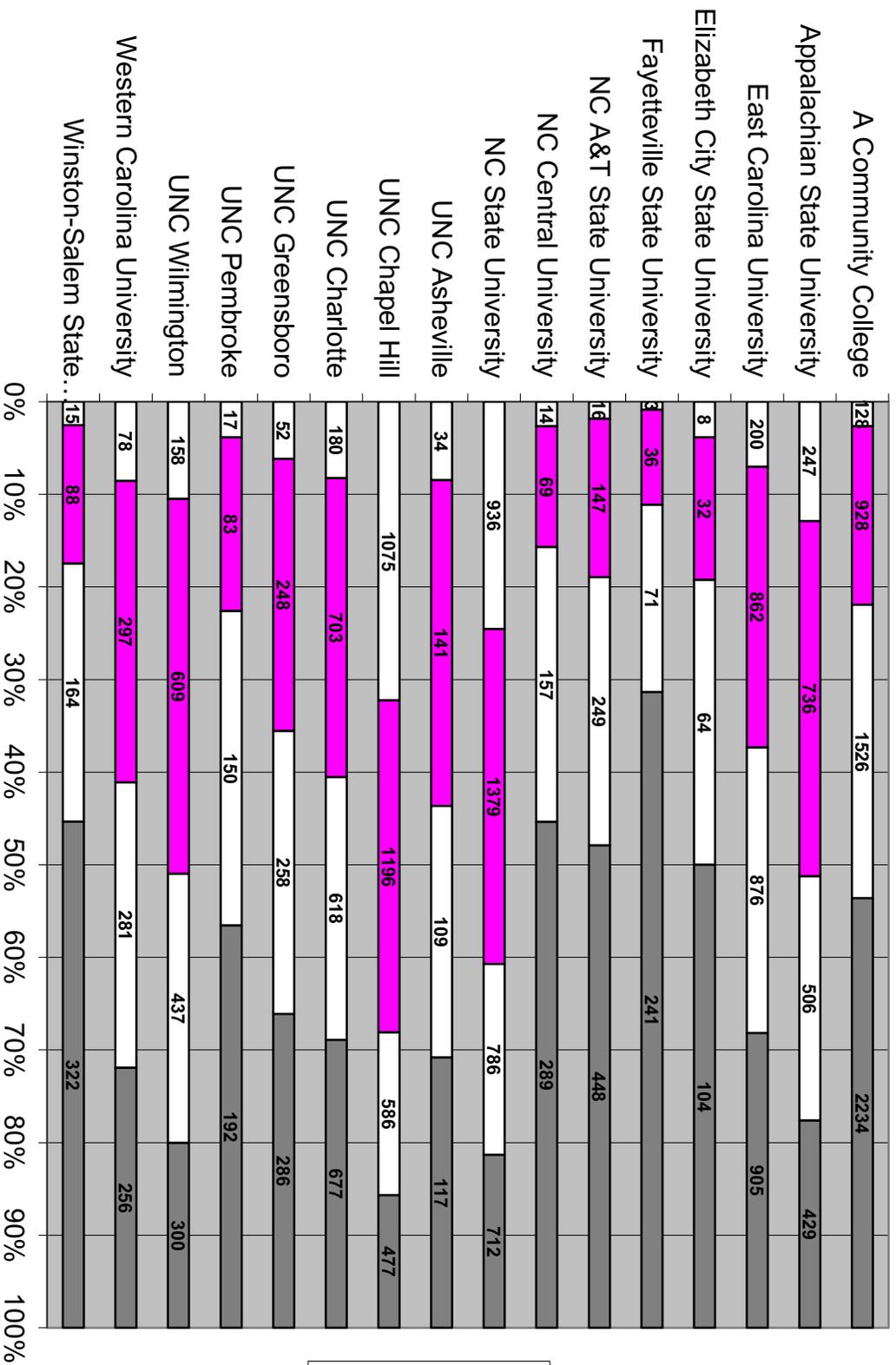


**Anticipated College Major
2014-2015**

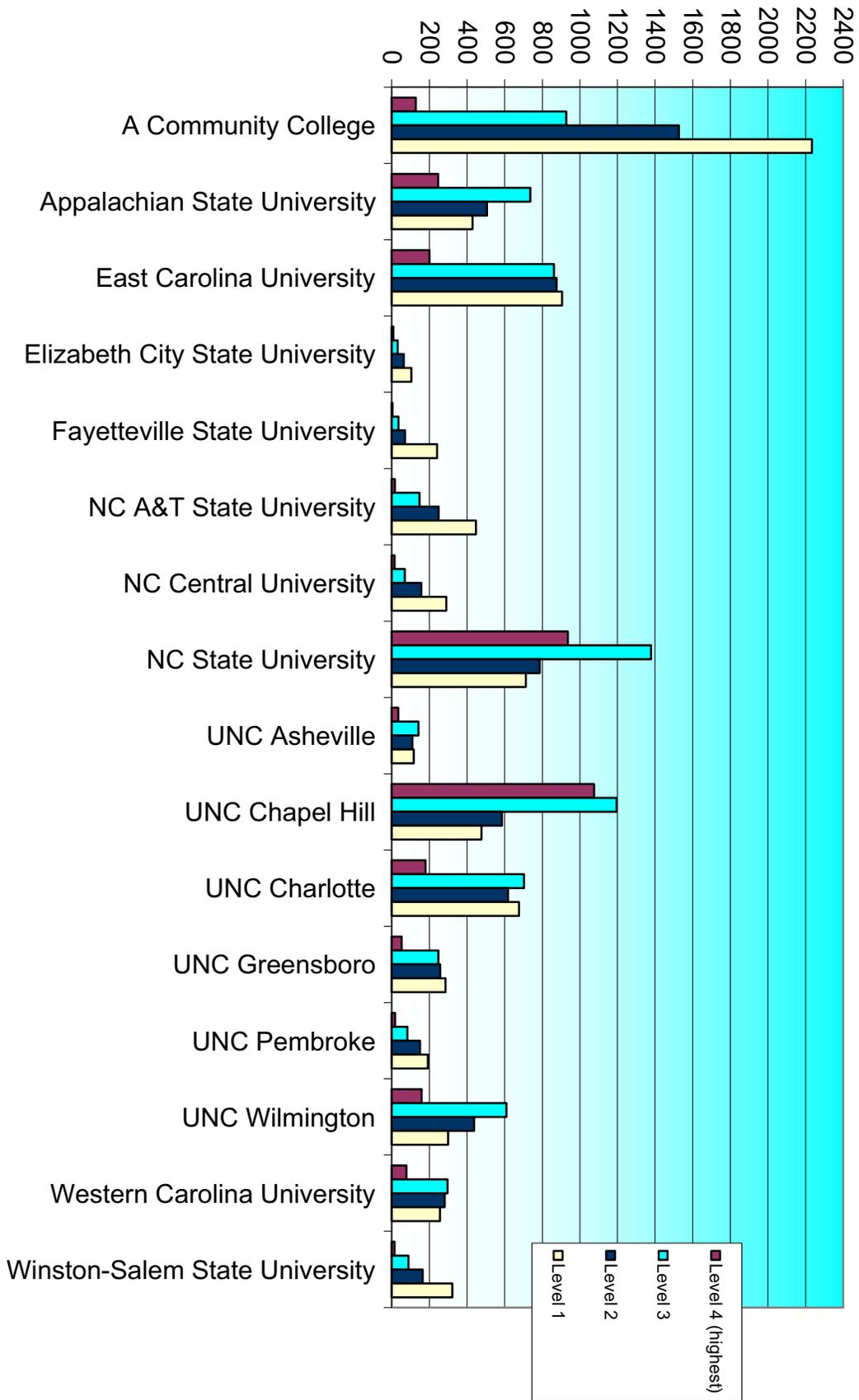
First Choice of School Planning to Attend 2014-2015



Placement Level by School Planning to Attend (1) 2014-2015



**Placement Level by Schools Planning to Attend (2)
2014-2015**



V. Trends in NC EMPT Data, 1996-2015

The NC EMPT Program has compiled data from a pilot semester (spring 1997) and eighteen full years of testing. Informative trends are appearing and they are presented in the following charts and graphs:

NC EMPT Cost Per Student

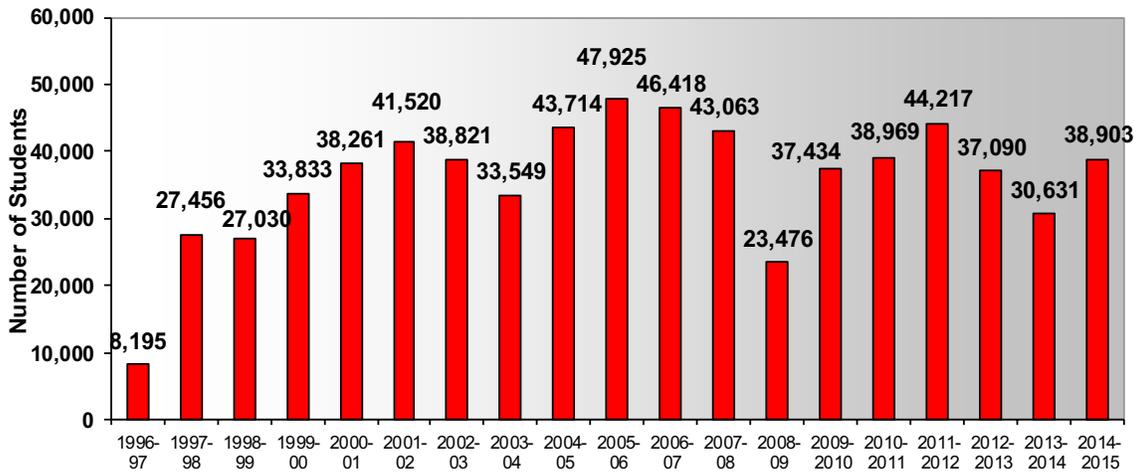
1998-1999	\$5.46	2006-2007	\$3.86
1999-2000	\$4.55	2007-2008	\$4.07
2000-2001	\$4.24	2008-2009	\$7.27
2001-2002	\$3.62	2009-2010	\$4.78
2002-2003	\$4.02	2010-2011	\$5.25
2003-2004	\$4.96	2011-2012	\$4.47
2004-2005	\$3.79	2012-2013	\$5.26
2005-2006	\$3.59	2013-2014	\$6.52
		2014-2015	\$5.26

Note that testing during 2008-2009 occurred only during the second half of the school year.

Top Anticipated College Majors

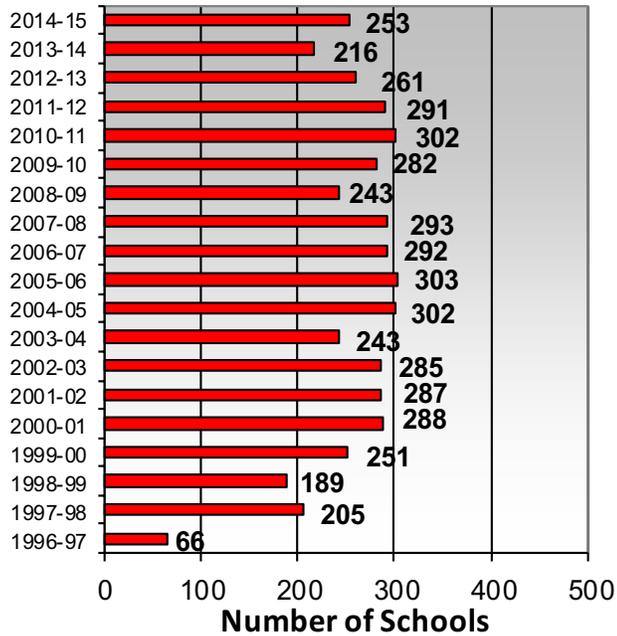
Year	Major	Students Choosing Major as First Choice
2008-2009	Business, Management, and Marketing	13%
	Pre-Med/ Pre-Vet/ Pharmacy	10%
	Visual and Performing Arts	9%
	Engineering	9%
2009-2010	Business, Management, and Marketing	12%
	Pre-Med/ Pre-Vet/ Pharmacy	10%
	Engineering	9%
	Nursing	9%
2010-2011	Business, Management, and Marketing	11%
	Pre-Med/ Pre-Vet/ Pharmacy	10%
	Engineering	10%
	Nursing	9%
2011-2012	Business, Management, and Marketing	12%
	Engineering	11%
	Nursing	11%
	Pre-Med/ Pre-Vet/ Pharmacy	11%
2012-2013	Business, Management, and Marketing	12%
	Engineering	10%
	Nursing	9%
	Visual and Performing Arts	9%
2013-2014	Business, Management, and Marketing	12%
	Engineering	10%
	Nursing	9%
	Visual and Performing Arts	9%
2014-2015	Business, Management, and Marketing	12%
	Engineering	10%
	Nursing	10%
	Visual and Performing Arts	9%

Students Participating in NC EMPT, 1996-2015

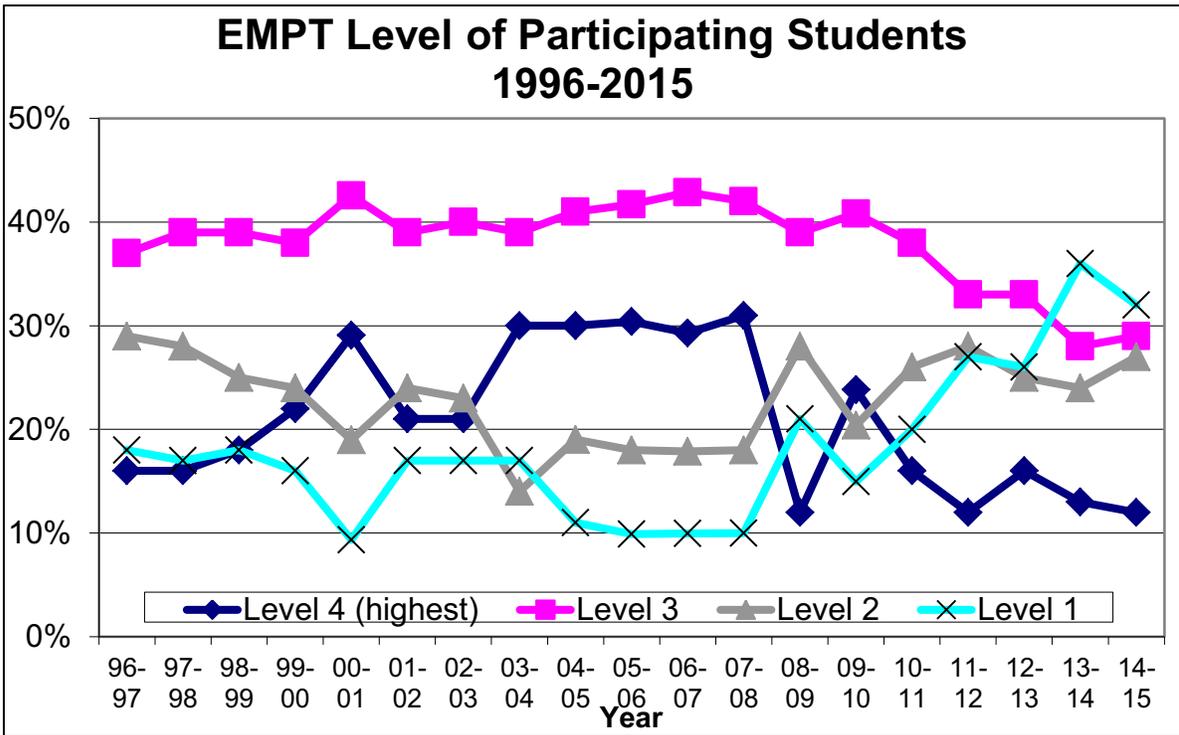
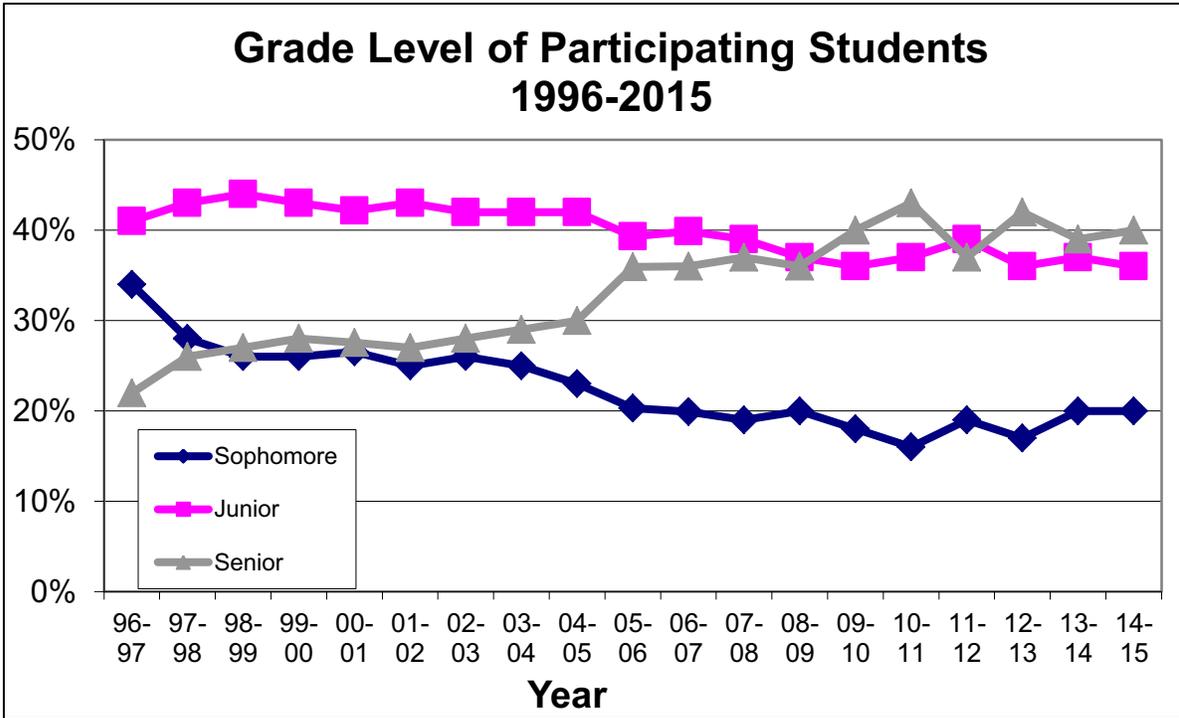


* Note that testing during 2008-2009 occurred only during the second half of the school year.

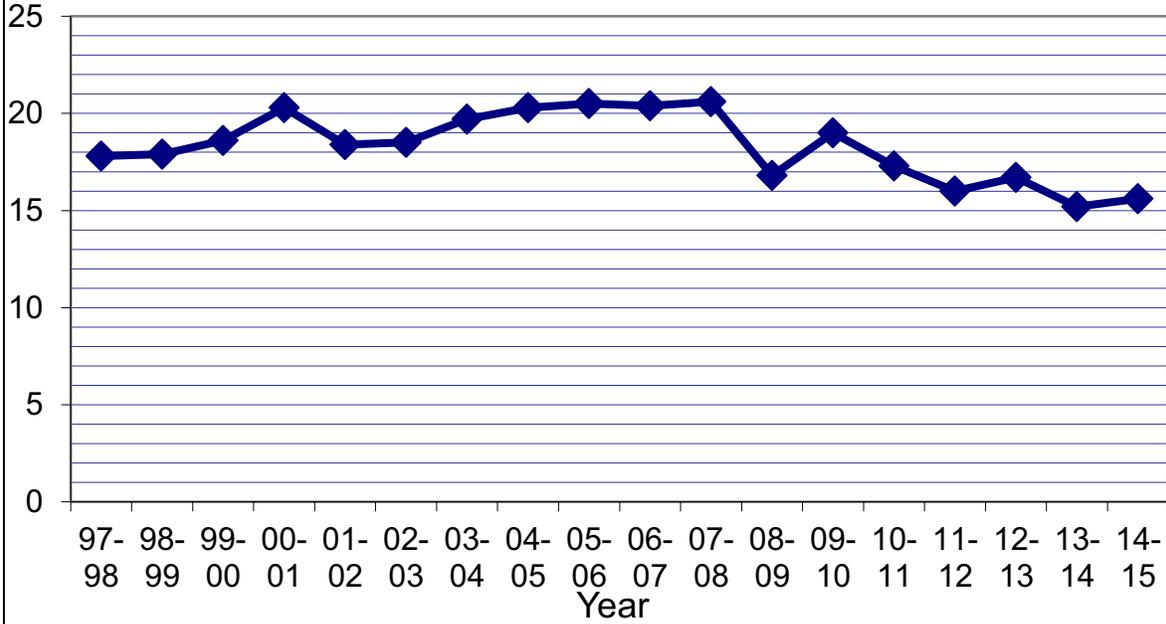
High Schools Participating in NC EMPT, 1996-2015



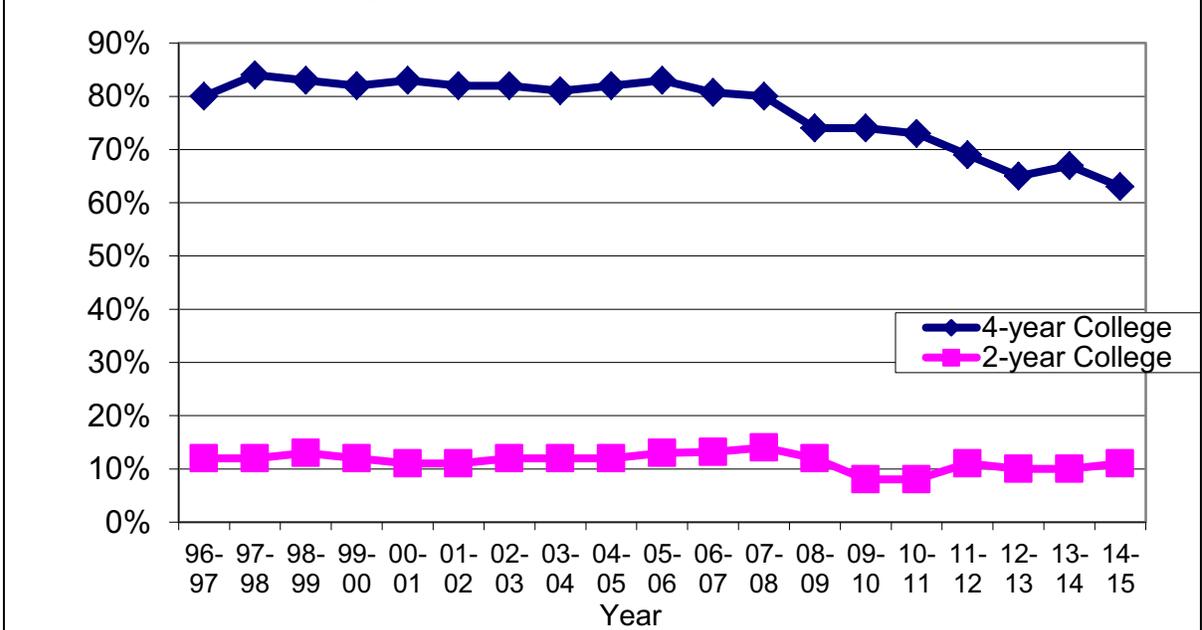
* Note that testing during 2008-2009 occurred only during the second half of the school year.



**Average Score Out of 32 Questions
for Participants Each Year, 1996-2015**



**Students Planning to Go to College
After High School Graduation, 1996-2015**



VI. Evaluation of the 2014-2015 Year

Feedback from participating teachers is essential to the success of the program and responses are carefully reviewed and considered. The surveys in this section of the report were disseminated in May and June 2015 to the contact persons of the high schools involved in Option #1 and/or Option #2 testing during the spring of 2015. Spring Option #2 is our largest and last testing window of the school year. Included is feedback from teachers following a block schedule or a traditional ten-month school calendar, and from public (including charter and federal) and non-public schools. The surveys were created and distributed via email using Qualtrics software. This software was made available to the associate director by the Information Technology and Computing Services (ITCS) Department of East Carolina University. The teacher contacts were asked to discuss the survey statements and questions with other participating mathematics teachers in their departments before completing the survey. With 98 of 192 surveys completed, 51% of those polled responded. This response rate was slightly lower than the 55% rate from the previous year, 2013-2014. The associate director emailed four batches of surveys to school contact persons throughout May and June 2015 as schools completed their last rounds of EMPT testing. An email reminder to complete the survey was sent to contact persons in each batch one week later. Survey results were anonymous.

This Survey of 2014-2015 Participating Teachers Found...

- ♥ **97%** strongly agreed or agreed that the informational mailings and monthly e-newsletters sent in 2014-15 to high school math chairs statewide and last year's contact persons were helpful reminders of the news and services available from the NC EMPT Program.
- ♥ **98%** strongly agreed or agreed that the NC EMPT office promptly returned hard copies of test score summaries for teachers and individualized results letters for students.
- ♥ **98%** strongly agreed or agreed that the NC EMPT Program accomplished its goal of providing their participating high school students with a "reality check" of their readiness for college-level mathematics.
- ♥ **99%** strongly agreed or agreed that the test score summary received by each teacher for each class period was helpful.
- ♥ **99%** strongly agreed or agreed that the testing instructions provided for each teacher were clear and easy to follow.
- ♥ **99%** strongly agreed or agreed that overall the NC EMPT Program provides a valuable service to high school students and teachers.

The survey illustrates the willingness of the NC EMPT staff to listen to suggestions by teachers, continue to make improvements, and maintain consistency in service. **It is especially inspiring to receive a 99% vote of confidence with regard to the overall value of the service to high school students, parents, and teachers. The NC EMPT test is not mandatory and the fact that so many teachers voluntarily find room in their busy math curriculums to employ this early mathematics placement test is a testament to its value.**

Each year, NC EMPT Advisory Board members that represent NC community colleges and UNC institutions are asked to update information about their particular schools. This information is unique to each school and includes calculator usage on actual mathematics placement tests, beginning required mathematics courses for majors, and descriptions of mathematics placement procedures. The associate director gathers this information and updates a brochure titled “Mathematics Placement Procedures at NC Community Colleges and UNC Constituent Institutions.” See pp. 25-26 for a sample of this document. This important brochure is disseminated annually to each participating teacher and all public and non-public high school principals, math chairs, and counseling departments. According to question #9 in the survey, a healthy 95% of the contact persons responding found this brochure helpful in advising students. This same valuable information has another important use. Appropriate paragraphs from the brochure are imbedded in individual student results letters based on the student’s choice of major and college/university.

A reassuring ten of the fifteen survey questions (80%) had equally positive responses or responses within two percentage points above or below the responses to the same questions in 2013-14. The NC EMPT website was redesigned in the fall of 2013 and this included using Qualtrics software to recreate and improve our online registration form for testing. Responses to question #2 indicate that our redesign efforts have paid off handsomely: 87% of the respondents strongly agreed or agreed that the online form was user-friendly and reliable (up from 78% in 2013-14). Also complimentary was the fact that the percentage of teachers who strongly agreed or agreed that the NC EMPT website, www.ncempt.org, is an informative tool for college math placement testing in NC was 89% (up from 85% last year). An important three-year positive trend was noted in the responses to question #6 regarding the serious attitude and attentiveness of students while testing, from 83% to 88% to 91%, for those teachers who strongly agreed or agreed. Similarly, another increasing three-year trend was noted in question #12, from 85% to 89% to 92%. The very positive teacher responses to this question related to the statement, “Students found their NC EMPT experience useful for future college plans.”

Question #5, “Test administration took a total of 60 minutes or less,” was the only question out of fifteen that showed a decline of more than two percentage points. In 2013-14, 96% of the responses indicated a strong agreement or agreement with this statement. In the 2014-15 survey, 91% agreed. The associate director has not received feedback from teachers about why this percentage decreased, but will make contacts with high school representatives to learn why.

Question #10, “Participating teachers took time to review test errors with students,” had a three-year response change from 77% to 73% to 71% in the last three surveys. This could be an indication of the competition for instructional time due to many other tests, schedule changes, and missed class days due to severe weather. The best case scenario would be for teachers to return a test copy along with each student’s individualized results letter and then take time to review the missed questions. Then students should be strongly encouraged to have their parent(s)/guardian(s) review the brochure which explains the test and the valuable results letter personalized for their child. The NC EMPT website offers many supplementary worksheets, lists of top missed questions, and a math placement test question of the week that could then be assigned to students to reinforce mastery of the indicated weaknesses.

The NC EMPT Program again enjoyed the services of webmaster Laurie Godwin, an ECU tech support specialist. We also appreciated the patience and great help of Qualtrics expert Monica Moore from the ECU ITCS Academic Computing Department.

A sample of the most recent Qualtrics year-end survey and the results follow:

NC EMPT Teacher Survey, Spring 2015

As our high school contact person, you play a pivotal role in the success of NC Early Mathematics Placement Testing. THANK YOU for your time and many efforts! We need, read, and react to your valuable feedback!

The deadline for your response is June 30, 2015.

Part A: Carefully read each statement below and respond by checking one box to the right of each.

Question	Strongly Agree	Agree	Disagree	Strongly Disagree	N/A or No Opinion	Total Responses
1. Informational mailings were sent to high school math chairs statewide and to last year's contact persons in October 2014 and then in February 2015. Monthly e-newsletters were sent as well. These mailings were helpful reminders of news and services available from the NC EMPT Program.	83	12	0	1	2	98
2. An online registration form for NC EMPT testing is available on the NC EMPT website. If you registered to test during 2014-15 using this online form, please rate this statement: The online registration form was user-friendly and reliable. (If you mailed or faxed a paper form, choose N/A.)	76	8	1	1	11	97
3. The NC EMPT website, www.ncempt.org , is an informative tool for college mathematics placement testing in NC.	66	21	1	1	9	98
4. The testing instructions provided for each teacher were included with testing materials. These instructions were clear and easy to follow.	89	8	0	1	0	98
5. Test administration took a total of 60 minutes or less.	68	21	5	2	2	98

Question	Strongly Agree	Agree	Disagree	Strongly Disagree	N/A or No Opinion	Total Responses
6. Students were attentive and tested with a serious attitude.	40	49	6	2	1	98
7. The NC EMPT office promptly returned hard copies of test score summaries for teachers and individualized results letters for students.	90	6	1	1	0	98
8. The test score summary received by each teacher for each class period was helpful.	84	13	0	1	0	98
9. The orange brochure titled "Mathematics Placement Procedures at NC Community Colleges and UNC Constituent Institutions, 2014-2015" was included in each teacher's results package. This brochure was useful to teachers in advising college-bound students.	74	19	1	1	3	98
10. Teachers took time to review test errors with students.	37	33	11	6	11	98
11. Students found their individualized student results letters valuable.	51	41	0	1	4	97
12. Students found their NC EMPT experience useful for future college plans.	37	51	3	1	4	96
13. The NC EMPT Program accomplished its goal of providing your participating high school students with a "reality check" of their readiness for college-level mathematics.	70	25	0	1	1	97

Question	Strongly Agree	Agree	Disagree	Strongly Disagree	N/A or No Opinion	Total Responses
14. The NC EMPT Program will accomplish its goal of helping to reduce the percentage of incoming college freshmen that require mathematics remediation at the college level (consider the seniors from your high school that participated in the program and plan to attend college in fall 2015).	52	34	5	1	5	97
15. Overall, the NC EMPT Program provides a valuable service to high school students and teachers.	79	16	0	1	0	96

Part B: Please type your thoughts about the three questions below:

16. A new resource continued to be provided for students and teachers during the 2014-2015 school year on the NC EMPT website. It was a weekly posting of a practice college math placement "Test Question of the Week." Each new question also included the answer and solution to the previous week's question. A second website link compiled the "Past Test Questions of the Week." There are now sixty-eight practice questions and solutions available. Did you and/or your students use this NC EMPT resource? Please explain why or why not.

Number	Comments About Teachers and Students Using the NC EMPT website resources: "Test Question of the Week" and "Past Test Question of the Week."
29	<i>Yes, we used these helpful sample test questions!</i>
8	<i>Yes, the practice questions were valuable practice for college math placement testing.</i>
4	<i>I used these questions as warm-up problems weekly; great openers for the beginning of class or for when I had extra time.</i>
1	<i>The questions were another tool we could use to place students in appropriate next classes.</i>
1	<i>I strongly encouraged my students to use this resource at home to study for the practice NC EMPT test and to keep for the real math placement test they will see this summer.</i>

1	<i>I love the weekly questions you provide! I wish it was a question each day. This is great for students to use all year long, even when they are not in a math class.</i>
1	<i>I used these questions with my PreCalculus students and it was an awesome review of skills that they claimed they did not remember.</i>
1	<i>These questions provided practice in doing higher-level thinking, which is part of our mission statement.</i>
1	<i>These questions provided a wake-up call for many of my students.</i>
1	<i>We used some as Math Club questions of the month.</i>
1	<i>I used these as bonus questions throughout the semester.</i>
1	<i>I used these questions during the Flex period.</i>
1	<i>These were most helpful in exposing students to a variety of types of math problems which may or may not be covered in the high school curriculum.</i>
52	No , I did not use the weekly sample math placement questions from the NC EMPT website.
17	No, due to time constraints; I did not have the time for them <u>and</u> the material I have to teach; the curriculum is already too full and I had to focus on it.
17	My math department did not use the questions, but plan to incorporate them next year; we will do better to share this resource next year; if we just plan to include them next year, it will happen!
11	I was not aware of this resource; I did not realize it was available; my fault for not reading the e-newsletters more carefully; I didn't use them, but I'm not sure why not.
4	We couldn't squeeze the questions in. We have been swamped with trying to cram all the content in with losing so many instructional days due to snow.
4	I taught math classes that these questions were not appropriate for.
3	I'm not sure if the questions were used by teachers and/or students. I am not a member of the math department. I am an administrator.
2	I used practice ACT questions instead in my classes to help prepare for the ACT.
2	We didn't use these questions, but we used the Top Ten Missed Questions in our classes.
2	I didn't go back to the NC EMPT website often enough this year to remember all the resources it offers. I will plan to pull in these questions next year.
1	I didn't use these questions in my classes, but I did use some at the STEM Program for

	<i>middle and high school students.</i>
1	<i>I should have used them, but with NC Final Exams, we were so busy preparing for the exams that I completely forgot these questions were there.</i>

In an effort to measure how often the NC EMPT website links “Math Placement Question of the Week” and the accompanying “Past Questions of the Week” were clicked on by students and teachers, Google Analytics software was employed in late March 2015. The table below shows increased usage during the months of April and May 2015. These counts will continue to be monitored during the next school year.

Link on www.ncempt.org	Month	Clicks
Question of the Week	April 2015	139
Question of the Week	May 2015	166
Past Questions of the Week	April 2015	31
Past Questions of the Week	May 2015	32

17. A new fourth math course option was introduced in some public high schools across NC during 2014-15. More high schools will offer this course during 2015-2016 here in NC and in other states nationwide. Created by writing teams from five states (including NC) for the Southern Regional Education Board, the course is titled "SREB Math Ready." North Carolina renamed the course "Essentials for College Math" (ECM). Students in ECM classes are an important target audience for NC EMPT because their college readiness math skills need strengthening. Monthly NC EMPT e-newsletters have included updates about SREB and the new ECM course. Were these updates helpful? Is there additional information you would find helpful in the e-newsletters?

Number	Comments About the Helpfulness of Monthly NC EMPT e-Newsletters in Providing Updates About SREB and the New ECM Course.
43	<i>Yes! The updates were very helpful.</i>
2	<i>I love to be in the “know” with upcoming curriculum information.</i>
2	<i>The updates reinforced and clarified information received from other sources; the updates provided additional support for teachers.</i>
1	<i>The monthly e-newsletters informed me about training session dates and locations. I also learned what ECM is all about.</i>

1	<i>The monthly e-newsletters allowed me to discuss new information with my guidance counselor about math course options for the coming year.</i>
1	<i>Any math updates are always helpful to the teacher in preparing lesson plans and in considering new teaching strategies.</i>
1	<i>Even though we are not bringing SREB Math Ready to my school, they were helpful. Hopefully we will soon be able to offer the course. I also liked giving the pre- and post-test to my ECM student. 14 out of 18 improved! :o)</i>
1	<i>Our ECM class was used for seniors that would have struggled in AFM. Most are going to a community college, work, or the military. I used some of the ECM activities in my other classes too.</i>
1	<i>We are still puzzled about why this course is considered "above Alg II." Can this issue be addressed in a future newsletter?</i>
1	<i>We want to know what the State Board of Education is planning to do about 4th math course options. Will we continue to teach Precalculus and AFM? Why does there need to be so many 4th course options? We don't want to jump on the next bandwagon until we are sure our students are being served in the best way possible.</i>
1	<i>I enjoy the monthly newsletters. It would be helpful to share project ideas or teaching ideas for ECM teachers. Maybe somewhere teachers can share ideas with other teachers who taught ECM last year or will be teaching it in the new school year.</i>
3	<i>E-Newsletter information was not helpful.</i>
17	Not Applicable. <i>We do not offer the ECM class.</i>
7	<i>I don't think I received e-newsletters. I was not aware of the new course.</i>
4	<i>We are not planning to offer ECM at our school, but it is helpful to keep up with what is going on at other schools.</i>
3	<i>I teach in a private school, so this does not apply to us, but I am interested in knowing more.</i>
1	<i>I used the updates to inform and remind our administrators of the value of this course. They have decided not to offer this math course option.</i>
1	<i>We will not offer this new course in the fall because our guidance department decided it was too late to include in the course offerings for the fall. I'm not sure if guidance got the newsletter information. It was very helpful.</i>
1	<i>I passed this information along to my headmaster to keep her in the loop as well. Unfortunately, because I am a private school teacher, I am not allowed to attend the NC DPI training seminars. I am eligible to travel to Atlanta (for the SREB Math Ready Training at the</i>

	<i>High Schools that Work Conference), but it is not in our small school budget. We hope to offer ECM in 2016-17.</i>
1	<i>We wanted to use the NC EMPT test scores to help us steer Math 3 students to the fourth math course where they would be most successful. SREB's suggested range of ACT scores (16-20) put almost our entire population in ECM. In Precalculus, I cannot cover all the material due to the weak math skills of my students.</i>

18. DONE! THANK YOU for taking time to give us your valuable thoughts. If you have any other comments you'd like us to hear, please write them below.

Number	Additional Comments
14	<i>THANK YOU for providing this much needed service to high school students, their parents, and teachers.</i>
11	<i>We appreciate how efficient and fast you are; I think you and your staff do an amazing job; thank you for being flexible and so helpful; we appreciate the promptness of the data received for our students.</i>
6	<i>We LOVE NC EMPT! You guys are great! This is a super program – keep up the good work!</i>
4	<i>NC EMPT offers excellent resources; you provide an invaluable source of information not only about our students' readiness for college-level math, but also about the relevance of our math curriculum.</i>
4	<i>I appreciate the work NC EMPT is doing for the students of my school and state; this was the reality check many of my students needed to help them know how to prepare for their future placement tests; I always try to plan time into the schedule to do these tests, as they are so valuable for students <u>and</u> me.</i>
3	<i>Thank you, Ellen, for all your cheerful and positive notes; Ellen is awesome; thanks for all of Ellen's efforts.</i>
2	<i>Thank you, Ellen, for all of your hard work during the school year. I find the EMPT very useful and have used it for years with my AFM classes; I always have some students who do not take the test seriously, but I do believe more of them worked harder on the test this year.</i>
1	<i>Thank you for making this all so easy!</i>
1	<i>I am a strong believer in the NC EMPT Program and find its results very valuable for identifying gaps in our curriculum.</i>
1	<i>I enjoy giving the NC EMPT test each spring. It reinforces what I tell the students – Math is important for college!</i>
1	<i>I answered "no opinion" to several of these survey questions because I do not know much about college math entrance exams, other than what I have learned through the NC EMPT</i>

	<i>Program. I think the idea of a reality check was eye-opening for my students.</i>
1	<i>Students who have the opportunity to take an entrance exam for community colleges have returned to say they were given a test on the computer. It was called "Accuplacer," I think. Is this becoming the norm? They also mentioned that several arithmetic problems were on the test and that the test was calculator inactive. What exactly are the community colleges trying to emphasize?</i>
1	<i>I would like to learn more about the SREB Math Ready course. What textbook is used? What are the course objectives?</i>
1	<i>I wish the electronic test results would include more than just a list of scores for all students tested. I would like a summary provided for each teacher of the number of questions missed by students in each class period. Currently teachers have to review each results letter and tally the information manually. (Note from associate director: Hard copies of NC EMPT results letters for each student participant and class summaries for each teacher are mailed to the high school contact person. Electronic results in an Excel format are also available upon request by the contact person and are emailed immediately after ospcan forms are graded in the NC EMPT office.)</i>
1	<i>Just wondering whether the online testing option will become available again? My school now has enough computers so that I can test online if I plan accordingly.</i>
1	<i>I hope that our school will now continue to take part in the NC EMPT Program each year and use it to help our students be more college-ready.</i>



NC EMPT has been continuously directed by faculty and staff at East Carolina University since the program's inception.

Appendix A

**The 2014-2015
Required Background Questions,
Suggested Levels and Answer Key, and
Parent/Guardian Brochure**

The North Carolina Early Mathematics Placement Testing Program

Required Background Questions 2014-2015, Both Options, #1 and #2

Mark ONLY one answer for each question. Your answers should be placed on the NC EMPT bubble sheet (opscan form) in the section labeled “Background Questions.”

A) The one school I am most likely to attend is:

(Please answer this question even if you are planning to attend a private or an out-of-state college by marking a choice most representative of where you plan to enroll.)

- | | |
|--------------------------------------|---------------------------------------|
| 001. Appalachian State University | 009. UNC Chapel Hill |
| 002. East Carolina University | 010. UNC Charlotte |
| 003. Elizabeth City State University | 011. UNC Greensboro |
| 004. Fayetteville State University | 012. UNC Pembroke |
| 005. NC A&T State University | 013. UNC Wilmington |
| 006. NC Central University | 014. Western Carolina University |
| 007. NC State University | 015. Winston-Salem State University |
| 008. UNC Asheville | 016. One of the NC Community Colleges |

B) My most-likely college major will be in the following category:

(Please mark only one of the twenty-five choices. Not all universities and colleges offer all of these majors.)

001. **Engineering** (e.g. aerospace, architectural, biological, chemical, civil, electrical, environmental, industrial, mechanical, nuclear, ...)
002. **Social and Behavior Sciences: Public Administration and Social Service Professions** (e.g. public administration, social work, ...); **Social Sciences** (e.g. anthropology, economics, geography, political science and government, sociology, ...); **Psychology** (general psychology); **Communication and Journalism** (e.g. advertising, broadcast journalism, communication studies, mass communications/media studies, radio and television, ...)
003. **Humanities: English Language and Literature** (e.g. English literature, speech studies); **Philosophy and Religious Studies** (e.g. philosophy, religion studies); **Foreign Languages and Linguistics** (e.g. classics and languages, French language and literature, German language and literature, Spanish language and literature, ...); **History**
004. **Engineering Technologies:** (preparation of technicians in the various engineering fields) (e.g. electrical technician, engineering technician, industrial technician, ...)
005. **Mathematical and Physical Sciences: Mathematics and Statistics** (e.g. applied mathematics, mathematics, statistics, ...); **Physical Sciences** (e.g. chemistry, geology, meteorology, oceanography, physics, ...)
006. **Biology and Biomedical Sciences** (e.g. biochemistry, biology, biotechnology, botany, ecology, exercise physiology, marine biology, microbiology, ...)
007. **Visual and Performing Arts** (e.g. art history, art studies, dance, drama and theatre arts, fine/studio arts, graphic design, interior design, music performance, ...)
008. **Business, Management, and Marketing** (e.g. accounting, business administration, business economics, construction management, finance, hospitality management, international business, management information systems, marketing, ...)
009. **Agriculture** (e.g. agricultural business, animal sciences, food science, horticulture, ...)
010. **Family and Consumer Sciences** (e.g. apparel and textiles, child development, family and consumer sciences, foods/nutrition/wellness, human development, ...)
011. **Pre-K and Elementary Education** (e.g. elementary education and teaching, kindergarten/preschool education, childhood education, ...)
012. **Middle Grades Education** (e.g. junior high/intermediate/middle school teaching)
013. **Secondary Education in a Non-Science or Non-Mathematics Area** (e.g. teacher of art, business, drama/dance, English/language arts, family/consumer science, foreign language, health, history, music, physical education, social studies, special education, industrial arts, ...)
014. **Secondary Education in a Science or Mathematics Area** (e.g. teacher of biology, chemistry, math, general science, ...)
015. **Computer Science in a Mathematics, Engineering, or Science Area** (software development, networking, database, ...)
016. **Computer Science in a Business Area** (e.g. animation, simulation and game development, information science, information technology, quality assurance analysis, webpage/digital/multimedia design, ...)
017. **Nursing**

- 018. **Medical Technologies and Allied Health Fields** (e.g. athletic trainer, clinical/medical lab technologist, dietitian, environmental health, health care administrator, occupational therapy, public health, recreational therapy, vocational rehabilitation counseling,...)
- 019. **Pre-Medicine, Pre-Veterinary Medicine, or Pharmacy**
- 020. **Architecture and Related Services** (e.g. city and community planning, environmental design architecture, landscape architecture,...)
- 021. **Ethnic, Cultural, and Gender Studies** (e.g. African-American studies, Native American studies, Latin American Studies, Women's studies,...)
- 022. **Natural Resources and Conservation** (e.g. environmental science, natural resources management, forest management,...)
- 023. **Parks, Recreation, Leisure and Fitness Studies** (e.g. health and physical education, kinesiology and exercise science, parks recreation and leisure facilities management, sports and fitness management,...)
- 024. **Security and Protective Services** (e.g. criminal justice, fire services administration, forensic science,...)
- 025. **Automotive Technology**

C) My second choice of a college major is: (Use the list in question **B** for your selection.)

D) I am presently enrolled in the following math course:

(Please mark only one choice. If you are taking two math courses, mark the higher numbered choice.)

- | | |
|---|---|
| 1. Algebra II or Math III | 6. Pre-Calculus |
| 2. Essentials for College Math | 7. Probability or Statistics or Discrete Math |
| 3. Advanced Functions and Modeling | 8. Calculus |
| 4. Advanced Math or Algebra III or Advanced Algebra or Trigonometry | 9. Other |
| 5. Integrated Math IV or Math IV | 10. I am not currently enrolled in a math course. |

E) Enter the teacher's ID number for your math class. (Your teacher will supply this number to you).

F) Enter the period your math class meets.

G) My plans initially after graduation are:

- | | |
|--|------------------------------|
| 1. to attend a 4-year college or university | 5. to enter military service |
| 2. to attend a 2-year college or community/technical college | 6. none of these |
| 3. to initially attend a 2-year college and then attend a 4-year college | |
| 4. to attend a trade school or apprenticeship program | |

H) How many college-level math courses will be required for your first choice of college major?

- | | |
|------------------------|-------------------------|
| 1. None | 4. I don't know. |
| 2. One course | 5. Not applicable to me |
| 3. Two or more courses | |

I) Please indicate your race/ethnicity. (This question is optional.)

- | | |
|--|-----------------------|
| 1. American Indian or Alaskan Native | 5. Hispanic or Latino |
| 2. Asian or Asian American or Pacific Islander | 6. Multiracial |
| 3. African American or Black | 7. Other |
| 4. White | |

J) Which calculator will you use on this test?

- | | |
|-------------------------------|----------------------------|
| 1. None | 3. A scientific calculator |
| 2. A four-function calculator | 4. A graphing calculator |

Suggested Levels of the NC EMPT Program, 2014-2015

<u>Student Score</u>	<u>NC EMPT Level</u>	<u>Predicted First College Course</u>
0-11	1	Remedial Mathematics
12-16	2	Borderline-depends on indicated major
17-24	3	First Course in College Math
25-32	4	Second Course in College Math in some majors

Explanations:

Level 1: A Level 1 score indicates the student is not ready for college-level math courses and must take remedial mathematics.

Level 2: A Level 2 score indicates the student must take remedial mathematics in some choices of major.

Level 3: A Level 3 score indicates the student is ready for a beginning-level college mathematics course. However, a Level 3 score may be considered borderline at some universities for students planning to major in math, science, or engineering.

Level 4: A Level 4 score indicates a solid high school preparation for college-level mathematics. Some universities may allow a student scoring at Level 4 on their math placement test to skip the first college math course, depending on that student's choice of major.

Note: The level numbers have been reversed from the order used in 1996-1999 so that NC EMPT levels will more closely align with the NC Department of Public Instruction goals for public school children. Level 4 is now the highest level.

NC EMPT Placement Exam Answer Key, 2014-2015, Option #2

Question #	Correct Answer
1	C
2	B
3	C
4	B
5	E
6	A
7	C
8	B
9	D
10	C
11	A
12	D
13	D
14	E
15	A
16	B

Question #	Correct Answer
17	D
18	C
19	E
20	D
21	D
22	B
23	A
24	B
25	B
26	E
27	D
28	E
29	A
30	C
31	A
32	E

Actual college mathematics placement tests are often given during summer orientation sessions, just before college enrollment. Students should be warned not to let their mathematical skills “get rusty” and be reminded to study their algebra and geometry skills just prior to the date of their actual college mathematics placement test.

“The retention of mathematical skills is critical to the correct placement of a student during his or her first semester of college coursework.”

For more information about NC EMPT, please contact your child's mathematics teacher or:

Ellen Hilgoc, Associate Director	Phone: 252-328-6418
NC EMPT Program	Fax: 252-328-2166
Building 123, Mail Stop 145	E-mail: ncempt@ncempt.org
1805 Charles Blvd.	
East Carolina University	
Greenville, NC 27858-4353	



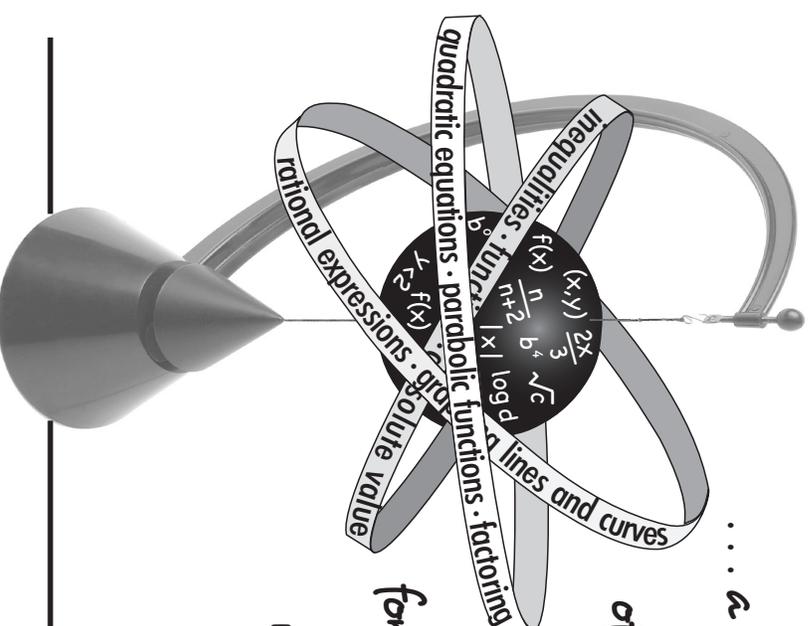
NC EMPT has been continuously directed by the faculty and staff at East Carolina University since the program's inception in 1996.

www.ncempt.org

Visit our web site for a wealth of information about mathematics placement testing at NC community colleges and UNC institutions.

A Guide for Parents and Guardians 2014 - 2015

North Carolina Early Mathematics Placement Testing



... a reality check
of your child's
readiness
for college-level
mathematics

What is an early mathematics placement test?

Many high school graduates, upon entering The University of North Carolina (UNC) at one of the fifteen universities or the fifty-eight community colleges, will be given a mathematics placement test. Many non-public universities and colleges also require that a math placement test be taken. This test will determine the student's entry level for enrollment in collegiate mathematics. The North Carolina Early Mathematics Placement Testing (NC EMPT) Program hopes to better prepare high school students for collegiate mathematics placement.

By having high school students experience a test that is similar in content to the actual math placement test, the NC EMPT Program provides each student with a realistic early warning of their current mathematical level.

The thirty-two NC EMPT test questions are based on arithmetic operations, algebra, and geometry. Participation by NC high schools, public and non-public, is voluntary.

Does this test benefit my child?

Yes! One of the major goals of the program is to reduce the percentage of entering freshmen that require mathematics remediation at the college level. By offering students a "snapshot" of their mathematical standing while still in high school, the NC EMPT Program hopes to give students the motivation to retain skills, or take corrective action, while there is still time and help available.



We strongly advise ALL students to continue to take mathematics courses during each year of high school and to be sure that these skills are increased and maintained.

What is the cost?

There is no cost to participating high schools or students for NC EMPT testing! The State of North Carolina sponsors the NC EMPT Program. However, the need to take remedial mathematics at the college level is very costly in both time and money! Parents and students need to realize that tuition for remedial mathematics courses at the college level has to be paid, but that credit hours for these courses towards a major or towards graduation are often not received.

Students spending time in remedial mathematics courses lose valuable time and are delayed in the completion of other coursework with mathematics prerequisites. The student is often unable to complete degree requirements within four years of college.

When will my child take the NC EMPT test?

The early placement test is a one-hour test that is usually given during a high school class period. Students close to completing Algebra II, or Integrated Math III, or Common Core Math III, as well as students in higher-level mathematics courses, are eligible to be tested. The tests are graded at the NC EMPT testing center at East Carolina University and results are returned within two weeks. Each participating student will receive an individualized letter that states their score, current placement level, and a list of which test questions were answered correctly or incorrectly. In addition, each student will be provided information about required math courses for their chosen major and placement procedures at their chosen UNC institution or NC community college.

Suggested Levels of the NC EMPT Program / 2014 - 2015

Student Score (32 questions)	NC EMPT Level*	Predicted First College Course	Explanation
0 - 11	1	Remedial Mathematics	Score indicates the student is not ready for college level math courses and must take remedial mathematics.
12 - 16	2	Borderline - depends on indicated major	Score indicates the student must take remedial mathematics in some choices of major.
17 - 24	3	First Course in College Math	Score indicates the student is ready for a beginning-level college mathematics course. However, a Level 3 score may be considered borderline at some universities for students planning to major in math, science or engineering.
25 - 32	4	Second Course in College Math in some majors	Score indicates a solid high school preparation for college-level mathematics. Some universities may allow a student scoring at Level 4 on their Math Placement test to skip the first college math course, depending on the student's choice of major.

*Note: The level numbers have been reversed from the order used in 1996-1999 so that NC EMPT levels will more closely align with the NC Department of Public Instruction ABC's Plan. Level 4 is now the highest level.

Appendix B

Promotion of NC EMPT Participation 2014-2015

OUTREACH 2014-2015

EFFORTS TO PROMOTE THE NC EMPT PROGRAM STATEWIDE

Many emails and phone calls arrive daily from high school contact persons and personnel across the state. Teachers have questions about the testing process and timeline. These answers, along with the swift delivery of testing materials and results, require clear communication and organization. An immediate response from the associate director and/or the administrative support associate is a very effective asset of our small office. An informative and user-friendly website, an e-mail distribution list that has grown to include more than two thousand educators, and monthly e-newsletters help spread the news about NC EMPT's free services. However, meeting teachers face-to-face is also a powerful tool in answering questions and in spreading the word about the amazing early intervention services offered by the NC EMPT Program. By staying abreast of workshop and staff development offerings, the associate director tries to reach out to math teachers on their home turfs. By conferring with the mathematics staff at the NC Department of Public Instruction, public school secondary math coordinators, and the Mathematics and Science Education Centers at UNC campuses, the associate director searches for opportunities to present the NC EMPT Program and to provide a platform for teachers to learn, question, and make suggestions. In addition, the associate director stays abreast of national movements in the field of mathematics education. Outreach efforts occur throughout the year, but increase a great deal during the summer months when groups of secondary mathematics teachers gather statewide for workshops and professional development. During the summer of 2015, the associate director made NC EMPT presentations to more than two hundred teachers and administrators at: four training sessions for teachers new to teaching Essentials for College Math, a math modeling workshop at WSSU, and two math workshops at ASU sponsored by the MELT Program (Mathematics Education Leadership Training).

The following list includes many of the outreach efforts made by the associate director during the 2014-2015 year:

- Sept 8, 2014: the NC EMPT director and associate director conferenced with Dr. Karrie Dixon, Vice President for Academic and Student Success, UNC-General Administration, to discuss the implementation of the new high school fourth math course, Essentials for College Math (ECM), Chapel Hill, NC
- Sept 18, 2014: met with Stephanie Woodley, Chair, Dept. of Mathematics and Physics, Pitt Community College, to discuss recent changes in NC community

college mathematics placement procedures and developmental course curriculums, Greenville, NC

- Sept 19, 2014: participated in a NC Ready for Success Summit in Mathematics, Central Piedmont Community College, Charlotte, NC
- Sept 25, 2014: participated in the first 2014-2015 Southern Regional Education Board (SREB) Math Ready webinar for teachers of ECM from several states across the nation; included was a welcome webinar and description of the field test process for teachers piloting the new ECM course
- Oct 15, 2014: participated in a second SREB Math Ready webinar; included was feedback and discussion from teachers in the field that were teaching ECM
- Oct 29, 2014: attended the State Leadership Seminar in Mathematics sponsored by the NC Dept. of Public Instruction and NC Council of Teachers of Mathematics (NCCTM), Greensboro, NC
- Oct 30-31, 2014: presented a NC EMPT session at the NCCTM State Mathematics Conference, Greensboro, NC
- Nov 19, 2014: participated in a third SREB Math Ready webinar; included was discussion and feedback regarding teachers orchestrating discourse in the ECM classroom
- Dec 17, 2014: participated in a fourth SREB Math Ready webinar; included was discussion and feedback regarding teachers employing effective feedback in the ECM classroom
- Feb 3, 2015: participated in a fifth SREB Math Ready webinar; included was discussion and feedback regarding ways to make groups work in the ECM classroom
- Feb 6, 2015: attended a NC Ready For Success Leadership Forum, McKimmon Center, NC State University, Raleigh, NC
- Feb 21, 2015: attended the NCCTM Central Region Mathematics Conference, NC Central University, Durham, NC
- Mar 7, 2015: attended a Mathematics Symposium, Meredith College, Raleigh, NC
- Mar 18, 2015: participated in a sixth SREB Math Ready webinar; included was discussion and feedback regarding ways for teachers to engineer discussion in the ECM classroom
- Mar 27, 2015: attended the NCCTM Spring Leadership Conference, Greensboro, NC
- Apr 20, 2015: the NC EMPT director and associate director conferenced with Dr. Junius Gonzales, the new Senior Vice President for Academic Affairs, UNC General Administration; Dr. Karrie Dixon; and other UNC-GA personnel to discuss the collection of data from students enrolled in ECM in public high schools statewide.

- Apr 27, 2015: selected to attend and participated in a Master Trainers Meeting for SREB Math Ready, attended by math educators from NY, WV, AK, KY, GA, NC, Atlanta, GA
- Jun 23-24, 2015: presented the NC EMPT Program to high school math teachers participating in the NC DPI-sponsored SREB Math Ready Training, Clemmons, NC
- Jul 8-9, 2015: presented the NC EMPT Program to high school math teachers participating in the NC DPI-sponsored SREB Math Ready Training, Wake Forest, NC
- Jul 10, 2015: presented the NC EMPT Program to participants of a workshop titled “Modeling Problems that Bring Mathematics to Life” sponsored by the Center for Math, Science, and Technology Education; Winston-Salem State University, Winston-Salem, NC
- Jul 13, 2015: conferenced with UNC-GA and NC DPI personnel to discuss collection and use of data from students enrolled in ECM, Chapel Hill, NC
- Jul 20, 2015: presented the NC EMPT Program to Winston-Salem Forsyth County secondary math teachers training to teach ECM, Winston-Salem, NC
- Jul 22-24, 2015: participated in an Appalachian State University Mathematics Education Leadership Training (MELT) Institute titled “Math 3,” and presented the NC EMPT Program to participants in two MELT institutes, Appalachian State University, Boone, NC
- Jul 29-31, 2015: presented the NC EMPT Program to high school math teachers participating in the NC DPI-sponsored SREB Math Ready Training, North Wilkesboro, NC

Photos, 2014-2015



NC EMPT appreciates and respects the wisdom of teachers who are loyal to the program year after year! Ellen Hilgoe (far left) meets with three of the program’s best cheerleaders. These three ladies (beginning 3rd from left) are Emogene Kernodle, retired, Western Alamance High; Christie Wuebbles, Wallace-Rose Hill High; and Becky Caison, retired, Walter Williams High. We all gather annually with friends and family at a restaurant after attending many sessions at the NCCTM State Mathematics Conference in Greensboro, NC, in October 2014.

(l to r): Teachers Tracey Weigold, Green Hope High; Christopher Peele, Lumberton Senior High; Joe Moyses, Lumberton Senior High; Haiden Laney, Parkwood High; and Tilola Robinson, Rolesville High, work as a group to illustrate the “Gummy Bear Flight,” a popular and educational activity in the quadratics unit of the SREB Math Ready curriculum; SREB Math Ready Training, Heritage High School, Wake Forest, NC, in early July 2015.



(l to r): Jeff McCulloch, teacher at Eugene Ashley High and a SREB Math Ready master trainer; Joseph Reaper, new NC DPI secondary math consultant; Ellen Hilgoe, NC EMPT associate director and a SREB Math Ready master trainer; Lisa Ashe, NC DPI secondary math consultant; Stefanie Buckner, SREB Math Ready consultant; all offer support to teachers and participate in a SREB Math Ready Training at Heritage High School, Wake Forest, NC, in early July 2015.

(l to r) Teachers Angela Leonard, Davie County High; Joy Howard, Davie County High; Kelly Dilday, Clayton High; Chris Sherrill, North Buncombe High; and presenter Kim Goff (at table), SREB math consultant; gather to display their NC EMPT bags in North Wilkesboro, NC, at a SREB Math Ready Training in late July 2015.



Appendix C

**Helpful Resources for High School
Teachers and Students:
Math Placement Test Question
of the Week
and
2014-2015 Top Ten Missed Questions**

North Carolina Early Mathematics Placement Testing Program, 11-3-14

Math Placement Test Question of the Week!

Circle the one best answer. Justify your answer by showing all work below.

42. The mathematical model of the relationship between time and the remaining number of kilobytes to be downloaded from a web site is $n = -3.2t + 450$, where n is the number of kilobytes remaining to be downloaded at time t in seconds. From the numbers below, select the amount of time nearest to when 100 kilobytes remain to be downloaded.

- A. 130 sec B. 770 sec C. 172 sec D. 110 sec E. 109 sec

Answer to Question #41, 10-27-14, is D:

41. Solve: $\frac{8}{x+5} - \frac{3}{x-5} = \frac{15}{x^2-25}$

- A. -14 B. -5 C. 8 D. 14 E. 70

Solution: Since this equation is fractional, it would be best to find the least common denominator (LCM) and use it to “clear out” the fractions. The first two denominators are prime, but the last denominator can be factored into $(x+5)(x-5)$. The LCM is $(x+5)(x-5)$. So multiply each term of the equation by the LCM.

$$(x+5)(x-5)\left(\frac{8}{x+5}\right) - (x+5)(x-5)\left(\frac{3}{x-5}\right) = (x+5)(x-5)\left(\frac{15}{(x+5)(x-5)}\right)$$

$$8(x-5) - 3(x+5) = 15$$

$$8x - 40 - 3x - 15 = 15$$

$$5x - 55 = 15$$

$$5x = 70$$

$$x = 14$$

Always check your solutions when solving a fractional equation! Avoid values for x that would make the denominator of any fraction in the original equation = 0. In this case, $x \neq \pm 5$.

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North Carolina Early Mathematics Placement Testing Program, 4-27-15

Math Placement Test Question of the Week!

Circle the one best answer. Justify your answer by showing all work below.

65. Simplify: $\frac{2x^{-5}}{x^{-6}}$

- A. $2x$ B. $\frac{x}{32}$ C. $32x$ D. $\frac{2}{x}$ E. $\frac{2}{x^{11}}$

Answer to Question #64, 4-20-15, is C:

64. In a right triangle, the measure of one leg is $\sqrt{6}$. The measure of the hypotenuse is 5. Find the measure of the other leg.

- A. $5 - \sqrt{6}$ B. $\sqrt{31}$ C. $\sqrt{19}$ D. $5 + \sqrt{6}$ E. 4

Solution: If the lengths of two sides of a right triangle are known, the length of the third side can be found by using the Pythagorean Theorem. Be sure to replace “ c ” with the measure of the hypotenuse.

$$a^2 + b^2 = c^2$$

$$a^2 + (\sqrt{6})^2 = 5^2$$

$$a^2 + 6 = 25$$

$$a^2 = 19$$

$$a = \sqrt{19}$$

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North Carolina Early Mathematics

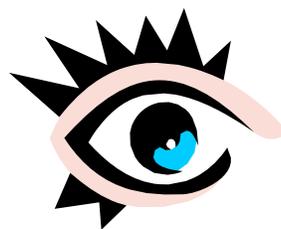
Placement Testing Program –

Providing a Timely Reality Check of Readiness for College-Level Mathematics

2014-2015 NC EMPT Test Version

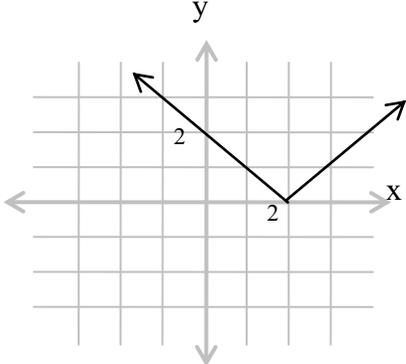
26,464 high school student participants

TOP 10 MISSED Questions

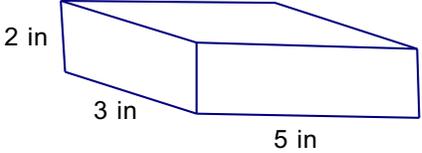


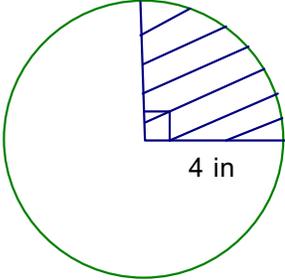
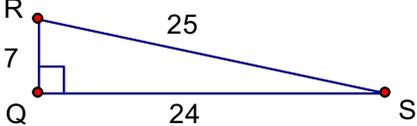
These questions are typical of those found on actual college math placement exams throughout the UNC System, NC community colleges, and other private colleges and universities. The questions are formatted for use on an overhead projector or document camera as a quick review or warm-up exercise for high school students in Algebra II, Math III, Essentials for College Math, Advanced Functions and Modeling, Precalculus, Discrete Math, Statistics, and other upper-level math courses. A pdf of this document can be located at www.ncempt.org. **Practice Makes Perfect!!**

Top Ten Missed	Students Answering INCORRECTLY	Test Item, 2014-2015 NC EMPT Test Version
1.	54%	Solve for x : $2^x = \frac{2^a 2^b}{2^c}$. A. $2^{\frac{ab}{c}}$ B. 2^{ab-c} C. $\frac{ab}{c}$ D. $\frac{a+b}{c}$ E. $a+b-c$

Top Ten Missed	Students Answering INCORRECTLY	Test Item, 2014-2015 NC EMPT Test Version										
2.	48%	<p>In the given table, the number of tigers at Zoo A is shown for various years. What is the percentage increase from 1990 to 2000?</p> <p style="text-align: center;">Tiger Population at Zoo A</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Year</th> <th>1970</th> <th>1980</th> <th>1990</th> <th>2000</th> </tr> </thead> <tbody> <tr> <td>Number of Tigers</td> <td>0</td> <td>8</td> <td>4</td> <td>12</td> </tr> </tbody> </table> <p>A. 50% B. 100% C. 150%</p> <p>D. 200% E. 300%</p>	Year	1970	1980	1990	2000	Number of Tigers	0	8	4	12
Year	1970	1980	1990	2000								
Number of Tigers	0	8	4	12								
3.	45%	<p>What is the equation of the inverse of the function $x + 2y + 3 = 0$?</p> <p>A. $y = -\frac{1}{2}x - \frac{3}{2}$ B. $y = -2x - 3$</p> <p>C. $-x - 2y - 3 = 0$ D. $x + 2y + 3 = 0$</p> <p>E. $2x - y + 3 = 0$</p>										
4.	44%	<p>Find the range of the function in the given graph.</p> <p>A. $y \geq 0$ B. $y \geq 2$</p> <p>C. $y > 0$ D. $x \geq 0$</p> <p>E. all real numbers</p> 										

Need more information about the **FREE** services provided by the NC EMPT Program? Contact Ellen Hilgoe, Associate Director, at 252-328-6418 OR e-mail at ncempt@ncempt.org. NC EMPT is sponsored by the State of North Carolina and is proudly housed at East Carolina University.

Top Ten Missed	Students Answering INCORRECTLY	Test Item, 2014-2015 NC EMPT Test Version
5.	42%	<p>This block of wood is a rectangular prism. What is the surface area of the block?</p> <p>A. 16 in^2 B. 25 in^2 C. 30 in^2 D. 38 in^2 E. 62 in^2</p> 
6.	39%	<p>The absolute value equation $x - 2 = 3$ has two solutions. What is the <u>sum</u> of these solutions?</p> <p>A. -4 B. -1 C. 0 D. 4 E. 6</p>
7.	38%	<p>Simplify the expression: $\frac{1}{3 + \sqrt{5}}$</p> <p>A. $\frac{3 - \sqrt{5}}{8}$ B. $\frac{3 + \sqrt{5}}{13}$ C. $\frac{\sqrt{5}}{8}$ D. $\frac{3 - \sqrt{5}}{4}$ E. $-\frac{3\sqrt{5}}{2}$</p>
8.	37%	<p>How high up on a building will a 15-foot ladder reach if the bottom of the ladder is placed 5 feet from the base of the building?</p> <p>A. $2\sqrt{10}$ ft B. $\sqrt{55}$ ft C. 10 ft D. $10\sqrt{2}$ ft E. $5\sqrt{10}$ ft</p>

Top Ten Missed	Students Answering INCORRECTLY	Test Item, 2014-2015 NC EMPT Test Version
9.	37%	<p>Find the area of the shaded region of the circle in square inches. Leave your answer in terms of π.</p> <p>A. 2π B. 4π C. 8π D. 10π E. 16π</p> 
10.	36%	<p>In the given right triangle, $\triangle QRS$, which equation would correctly find the angle of elevation from point S to point R?</p> <p>A. $\tan S = \frac{7}{24}$ C. $\cos S = \frac{24}{7}$ B. $\sin S = \frac{24}{25}$ D. $\cos S = \frac{7}{24}$ E. $\tan S = \frac{24}{7}$</p> 

The average score for the 26,464 high school participants on the 2014-2015 NC EMPT test version was 15.6 out of 32 questions, or 49%.

Correct Answers to the Top Ten Missed Questions, 2014-2015:

1. E 2. D 3. B 4. A 5. E 6. D 7. D 8. D 9. B 10. A

EVERYONE benefits: high school students, teachers, administrators, and parents:

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