BOARD OF REGENTS
BRIEFING PAPER

Experimental Programs, NSHE Co-Requisite and College-Ready Gateway Policy

March 5-6, 2026

BACKGROUND & POLICY CONTEXT OF ISSUE:

In June 2019 the Board of Regents approved the *NSHE Corequisite and College-Ready Gateway Policy* (Title 4, Chapter 16, Section 1), with an initial implementation date of Fall 2021. The policy which is currently in place (see subsequent 2020 policy revision) requires that within the first two regular academic semesters following initial enrollment, all degree-seeking students are to be placed into the college-level gateway math or English course, either with or without just-in-time support via corequisite instruction. At the same time, the policy prohibits traditional forms of remediation (such as Math 95 or 96 or English 98).

As part of the 2019 policy proposal, the Board also adopted a path for institutions seeking to offer experimental programs for a subset of the student population to request a temporary exception from the policy. This temporary exception (up to a maximum of two years) allows institutions to produce sizable and scalable experimental programs, but experimental programs cannot fully replace the corequisite pathway. The policy requires that data regarding the experimental program should be collected to determine if the program has the same or higher success rates than the mandated corequisite pathway. Institutions requesting an exception are required to submit their written request detailing the experimental program as well as information on disparate impact for participants to the Chancellor for feedback and Board of Regents for approval.

In accordance with these policy provisions, the College of Southern Nevada (CSN) is bringing forth the first proposal for an experimental program in math. Specifically, the CSN math department proposes to offer a "parachute" course to serve students identified as at risk during the early weeks of MATH 126E. If approved by the Board, the pilot program will offer six sections of parachute classes on a pilot basis beginning in Fall 2026. This will be a continuation of their Math 126E class in such a way that the parachute section will meet at the original Math 126E timings, so the student schedules are not disturbed. The Parachute Course will continue to meet for six credit hours, in which four credits will be devoted to mathematics and two credits to study skills. At-risk students will be determined through their performance in the homework assignments and assessment scores in the first four weeks of Math 126E meetings. The instructor of record will meet and recommend at-risk students to move into the Parachute Course. Students willing to move will make such requests by filling out a transfer form which will be processed by the registrar manually. Since the Parachute Course has an equivalent credit load and meets at the same class scheduling time and length as Math 126E, this change will not have any negative impact on their financial aid, as per the Office of Financial Aid at CSN.

It should be noted that the introduction of parachute courses is not a new concept. Even today, parachute courses are used in many institutions. Examples include (1) a CHEM 1106 course supporting CHEM 1215 at University of New Mexico; (2) CHEM 108 supporting CHEM 110 at Penn State Altoona; and (3) CHEM 100 supporting CHEM 125 at Grand Valley State University in Michigan. Rather than removing students from the gateway pathway, the parachute model provides structured, targeted support aligned with the pacing and content of the primary course. This approach allows students to maintain academic momentum while addressing gaps in foundational knowledge and study skills.

The effectiveness of the pilot will be evaluated using multiple measures, including student pass rates, withdrawal rates, and subsequent performance in MATH 126 at CSN. Outcomes for students enrolled in the parachute course will be compared to historical grade distribution data to assess improvements in persistence and success. Results will be disaggregated using categories reported in the NSHE Gateway Course Outcomes dashboard (i.e., race/ethnicity, age, gender and Pell recipient status). The Parachute Course committee will compile and analyze these data annually to inform decisions regarding continuation, modification, or expansion of the pilot. This annual report will be provided to CSN's Vice President for Academic Affairs as well the Chancellor's Office.

Finally, the proposed parachute course is not numbered in this proposal as that will be determined in accordance with Board policy through the NSHE Common Course Numbering (CCN) process.

SPECIFIC ACTIONS BEING RECOMMENDED OR REQUESTED:

CSN requests approval to offer an experimental program to offer a parachute course serving students identified as at risk during the early weeks of MATH 126E, to take place beginning in Fall 2026 through Summer 2028 (two academic years).

IMPETUS (WHY NOW?):

Now that the NSHE institutions are into the fifth year of full-scale corequisite implementation, they are looking for ways to build upon progress and further support students, specifically those who are in danger of failing to complete Math 126E.

CHECK THE NSHE STRATEGIC PLAN GOAL THAT IS SUPPORTED BY THIS REQUEST:

- ❑ **Access (Increase access to higher education)**
- X **Success (Improve student success)**
- X **Close Institutional Performance Gaps**
- X **Workforce (Meet workforce needs in Nevada)**
- ❑ **Research (Increase solutions-focused research)**
- ❑ **Coordination, Accountability, and Transparency (Ensure system coordination, accountability, and transparency)**
- ❑ **Not Applicable to NSHE Strategic Plan Goals**

INDICATE HOW THE PROPOSAL SUPPORTS THE SPECIFIC STRATEGIC PLAN GOAL

The proposal supports the Board's strategic goals of access and success by exploring additional math pathways to support students who are struggling with pre-calculus. Likewise, this proposal supports the Board's workforce strategic goal by providing students who are struggling with a path to gateway math completion and, ultimately, degree completion so that they are prepared to enter the workforce.

BULLET POINTS TO SUPPORT REQUEST/RECOMMENDATION:

- This proposal for a parachute math course at CSN complies fully with the Board's requirement for experimental programs under the NSHE Co-Requisite and College-Ready Gateway Policy.
- The proposal is supported by the CSN Math Department and institutional leadership.
- In pursuing the goal of continuous improvement of the math corequisite model, it is important to engage in thoughtful experimentation to see where and how improvements in supporting student success can be made.

POTENTIAL ARGUMENTS AGAINST THE REQUEST/RECOMMENDATION:

None have been presented.

ALTERNATIVE(S) TO WHAT IS BEING REQUESTED/RECOMMENDED:

None have been presented.

RECOMMENDATION FROM THE CHANCELLOR'S OFFICE:

The Chancellor's Office recommends approval of the proposal.

COMPLIANCE WITH BOARD POLICY:

X Consistent With Current Board Policy: Title #_4____ Chapter #_16____ Section #___1____

❑ Amends Current Board Policy: Title #_____ Chapter #_____ Section #_____

❑ Amends Current Procedures & Guidelines Manual: Chapter #_____ Section #_____

❑ Other:_____

❑ Fiscal Impact: Yes__X___ No_____

Explain: Details are provided within the proposal but the estimated cost to CSN for conducting the pilot is $33,899 for faculty pay and $4,617 for peer tutors, for a total of $38,516 per semester. In addition, it is proposed that CSN and NSHE leadership work together to identify grant funds to support course development during Summer 2026, totaling $14,125.

A Parachute Course to Support Pre-Calculus—Math 126E

An Experimental Program Proposal

Submitted to

Board of Regents

Nevada System of Higher Education

Submitted by

Alok Pandey

Mathematics Department

College of Southern Nevada

March 5-6, 2026

Parachute Class for Math 126E
A Proposal to Improve Students' Retention and Success

Purpose: The Nevada System of Higher Education (NSHE) implemented the NSHE Co-Requisite and College-Ready Gateway Policy (Title 4, Chapter 16, Section 1) in Fall 2021 for Math and English programs. In accordance with the provisions in this policy for Experimental Programs, College of Southern Nevada (CSN) is submitting this pilot proposal to offer a parachute course for selected students enrolled in Math 126E (Precalculus).

Research indicates that parachute courses can improve student retention and success in the STEM pathways by providing structured, timely academic support during the initial enrollment in a gateway course. This proposal outlines pilot implementation of a parachute course designed to support at-risk students enrolled in Math 126E while maintaining the rigor and learning outcomes needed to be successful in the gateway course.

Introduction: Math 126E is a precalculus gateway course required for many STEM majors and has been offered in the corequisite format by all NSHE institutions since Fall 2021, as a 5 or 6 credit course. At CSN, it is a 6-credit course. The demand for Math 126E is very high in comparison to the corresponding non-corequisite course, Math 126. One of the reasons for this high enrollment demand is that Math 126E is an open enrollment course while Math 126 requires a minimum placement test score. Before the implementation of the corequisite courses, at CSN enrollment in Math 126 required a satisfactory SAT/ACT score or a satisfactory placement test score or a grade of C or better in Math 96 (Intermediate Algebra). Enrollment in Math 96 required a satisfactory placement test score or at least a C grade in Elementary Algebra (Math 95). Math 95 and Math 96 were remedial courses and since Fall 2021 have been removed from offerings at all NSHE institutions according to the NSHE Board policy. With the removal of remedial mathematics courses under the corequisite model, students with a wide range of academic preparation now enroll directly into MATH 126E. While this policy improves access, it also places students with gaps in algebraic foundations and academic readiness into a rigorous math course. Precalculus requires a strong command of algebraic concepts as well as effective study strategies, and many students lack one or both upon entry. These challenges are reflected in elevated rates of withdrawals, non-passing grades, and course repetition.

Data Analysis and Problem Identification

College of Southern Nevada's math department started experimenting with corequisite math classes many semesters before Fall 2021. They also participated in multiple training courses provided by the NSHE Corequisite Task Force. The department established committees for each of the corequisite courses (there are three different corequisite math pathways) to develop and refine curriculums for each gateway math course. In addition, these committees provide resources to help all full- and part-time faculty members. All full-time CSN math faculty members have been teaching at least one corequisite section since Fall 2021. Many of the Math 126E sections utilize peer tutors to supplement instructions in the classes to address the lower pass rate problem, but this practice has not resulted in higher student course completion rates.

Table-1 below represents the grade distribution data for Math 126E students from Fall 2021 to Spring 2025. The table shows a drop rate between 7.2 percent to 9.2 percent in non-summer sections. These are the students who dropped from the class within the first week to receive a 100% refund or in the second week to get a 50

percent refund, without a W grade. This rule is for 16-week sections. CSN students must attend the first week of class and perform classwork to avoid being dropped from the class and still charged.

The percentage for W-grades is between 4.3 percent to 7.8 percent. These are the students who stayed in the class for a longer period but dropped the class themselves before 66 percent completion of a semester as CSN faculty do not assign W grades.

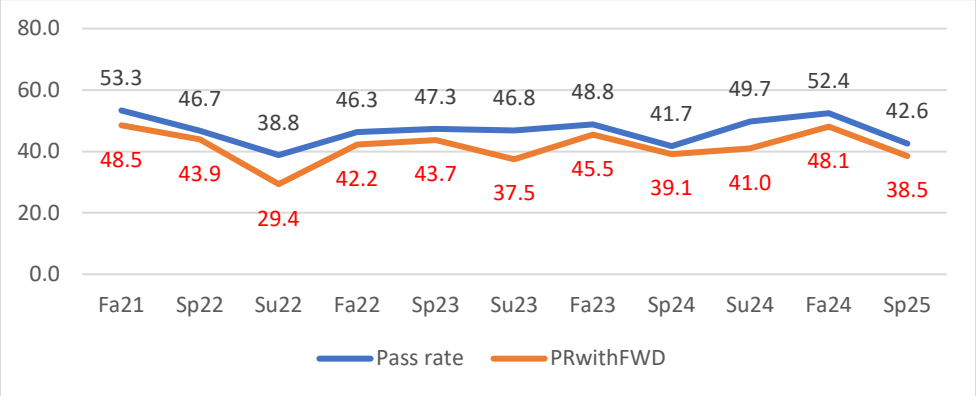
Table-1: Math 126E Enrollment and Grade Distribution Data

Grades	Fa21	Sp22	Su22	Fa22	Sp23	Su23	Fa23	Sp24	Su24	Fa24	Sp25
A to C-	279	225	59	490	342	66	450	303	84	444	363
D, F	163	188	28	400	268	29	331	301	40	273	338
W	25	35	18	52	43	12	65	61	12	39	47
Dropped (dropped without grade W)	53	34	46	110	66	34	72	56	33	84	102
AU	3	0	1	7	4	0	4	5	0	7	3
Total	523	482	152	1059	723	141	922	726	169	847	853
Week-1 drop	52	31	49	101	59	35	68	48	36	77	89
Total Enrollment	575	513	201	1160	782	176	990	774	205	924	942

Source: CSN Department of Institutional Research.

Across the 11 semesters analyzed, the pass rate (grades A through C-) ranged from a high of 53.3 percent in Fall 2021 to a low of 38.5 percent in Spring 2025. When students who dropped the course are included in the calculation, pass rates decline further. Grade distribution over the past 11 semesters is shown in Figure-1 below.

Figure-1: Math 126E Pass Rate (Grades A – C-)



Source: CSN Department of Institutional Research

Across all eleven semesters, the average pass rate was 46.8 percent, excluding drops and 41.6 percent when drops were included. While first-time students demonstrate higher success rates than repeaters, the overall outcomes remain concerning for a STEM gateway course. Persistent non-success in MATH 126E negatively

impacts student retention, progression into Calculus I, and the broader STEM pipeline. These data indicated a need for early intervention to support students during their initial enrollment rather than relying on repeated attempts to achieve success.

Solutions

These are some possible solutions:

- Identifying at-risk students through early placement or any other method and better preparing them through an introductory course. This may go back to introducing introductory algebra.
- Having at-risk students participate in mandatory out-of-class instruction (as suggested by Lindell, Coulombe and Saul). This is difficult for CSN students as most of them are working and have a restricted academic schedule.
- Identifying at-risk students through assessments in the first 4-5 weeks and allowing them to "swap" into a parachute course that provides more foundational support and study skills for under or unprepared students.

This proposal recommends the implementation of a parachute (concurrent support) course to serve students identified as at risk during the early weeks of MATH 126E. The introduction of parachute courses is not a new concept. Even today, parachute courses are used in many institutions. Examples include (1) a CHEM 1106 course supporting CHEM 1215 at University of New Mexico; (2) CHEM 108 supporting CHEM 110 at Penn State Altoona; and (3) CHEM 100 supporting CHEM 125 at Grand Valley State University in Michigan. Rather than removing students from the gateway pathway, the parachute model provides structured, targeted support aligned with the pacing and content of the primary course. This approach allows students to maintain academic momentum while addressing gaps in foundational knowledge and study skills.

Introduction to Parachute Course

Lindell, Coulombe, and Saul (2016) wrote a paper titled "Using a Parachute Course to Retain Students in Introductory Physics Courses" and shared their study about a physics parachute course, developed and offered between 2009-2016, by the Physics faculty at University of New Mexico (UNM) to address high-failure rates and to improve student retention. There were two main purposes of this physics parachute course:

1. Students maintain their GPA (and retain scholarships) and
2. Develop the knowledge and skills needed to succeed in Physics-1 in the future.

At UNM, students' midterm scores were used to determine if they are at risk. The parachute class met early in the morning, so it didn't interfere with the student's academic schedule. The parachute class was taught by an instructor, a tutor, and a grader. Only 21% of students earned grades less than a C, and hence Objective 1 seemed to have been achieved. Students who earned a grade lower than a B in the parachute course earned a mean grade of C- in Physics-1 while those who passed with a B or better had a mean grade between C+ and B- in the Physics-1 taken in subsequent semester.

CSN Proposal: A Parachute Course

CSN proposes offering a parachute course for at-risk students enrolled in Math 126E. The actual course number will be decided through the Common Course Numbering (CCN) process if the proposal is approved by the Board of Regents. The pilot program will offer six Parachute Course sections on a pilot basis beginning in Fall 2026. This

will be a continuation of their Math 126E class such that the Parachute Course will meet at the original Math 126E timings, so the student's schedule is not disturbed. The Parachute Course section will continue to meet for six credit hours, in which four credits will be devoted to mathematics and two credits to study skills. At-risk students will be determined through their performance in the homework assignments and assessment scores in the first four weeks of Math 126E meetings. The instructor of record will meet and recommend at-risk students to move into the Parachute Course. Students willing to move will make such requests by filling out a transfer form which will be processed by the registrar manually. Since the Parachute Course has an equivalent credit load and meets at the same class scheduling time and length as Math 126E, this change, from Math 126E to the Parachute Course, will not have any negative impact on their financial aid, as per the Office of Financial Aid at CSN.

The Parachute Course will be for 11 weeks (including finals week). A parachute committee of math faculty members have developed the Parachute Course curriculum including study skills materials. This curriculum has been approved by CSN's Math Department.

Students earning a grade of C or better in the Parachute Course will be eligible to enroll in MATH 126, the three-credit Precalculus course. A grade of C in the Parachute Course represents demonstrated proficiency in the algebraic foundations and academic skills necessary for success in Precalculus and ensures that academic standards are maintained while supporting student progression.

Parachute Course Evaluation

The effectiveness of the Parachute Course pilot will be evaluated using multiple measures, including student pass rates, withdrawal rates, and subsequent performance in MATH 126 at CSN. Outcomes for students enrolled in the Parachute Course will be compared to historical grade distribution data to assess improvements in persistence and success. Results will be disaggregated using categories reported in the NSHE Gateway Completion dashboard (i.e., race/ethnicity, age, gender and Pell recipient status). The Parachute Course committee will compile and analyze these data annually to inform decisions regarding continuation, modification, or expansion of the pilot.

1. All pilot sections will follow the same curriculum and flow in the first 4 weeks of Math 126E and then in Parachute Course sections.
2. All students will be given a notebook (to be developed by the department). The students will demonstrate their learning and study skills in the notebook. Students will be required to submit their notebook to the instructor/peer tutor for evaluation.
3. All pilot students will be given a placement test to measure their base level of math understanding. We recommend that all Math 126E students be given a placement test either before they start the semester or in the first week of the semester.
4. The Math Department will have a standing Parachute Course committee to answer any instructor questions. This committee will compile and report on the pass rate of the students in the Parachute Courses.
5. The committee will also monitor the progress of the students who earned C or better grades and move forward to Math 126 as well as those who earned less than a C grade and repeat Math 126E.
6. The department chair or their designee will submit an annual progress report to the Chief Academic officer along with any modifications needed in the curriculum of the Parachute Course.

Parachute Course Timeline

Spring and Summer 2026: a Parachute Course workbook will be developed by the CSN math faculty on the Parachute Course Committee.

Fall 2026: The first Parachute Courses are offered. A total of six sections, two at each of the three campuses, will be offered.

Spring 2027: Six sections of Parachute Courses will be offered.

Summer 2027: The 2026-27 academic year Parachute Course report will be prepared, and Academic Year 2027-28 Parachute Course dates will be determined. The report will be provided to the CSN Chief Academic Officer and NSHE Chancellor's Office

Fall 2027: Six sections of Parachute Courses will be offered.

Spring 2028: Six sections of Parachute Courses will be offered. CSN will determine whether an extension to the pilot will be requested from the Board of Regents (for presentation at the March quarterly meeting).

Summer 2028: The 2027-28 academic year parachute course report is prepared and provided to the CSN Chief Academic Officer and the NSHE Chancellor's Office.

Institutional Investment

Institutional investment is needed for offering this parachute course because there is no revenue coming from this course. Pilot sections of Math 126E students who are found unprepared and willing to be swapped into a Parachute Course will not pay any additional registration fees for that course.

Implementation Cost: CSN is committing the following institutional investments to support the pilot Parachute Course program.

1. **Administrative cost**: Moving students from Math 126E to a Parachute Course will require manual processing. These steps are implemented by the instructor of record, the administrative assistants of the math department, and the CSN registrar, respectively. Administrative cost also includes the cost of classroom space. While the administrative cost is minimal compared to other costs, it is worth noting.
2. **Faculty Cost**: The cost for teaching faculty is notable because there will be no revenue from registration fees for the parachute courses. Total cost will be approximately $33,900. The minimum teaching cost for the six sections of the Parachute Course, each six-credits, will be at a minimum of $33,300 per semester (6*$925 =$5,550 for each section). The calculation is based on the adjunct pay rate at CSN. The total projected compensation including fringe will be $33,899. If the pilot sections are taught by the full-time faculty, part-time faculty will be utilized to pick up the workload of full-time faculty, resulting in the same projected cost of $33,900 per semester.
3. **Tutor Cost**: The cost for six Peer Tutors will be $4,500 (based on $15/hour for 5 hours per week for 10 weeks = $750 for each section). The total projected compensation, including fringe, will be $4,617 per semester.

Development Cost: A group of five faculty members who collaborated on this proposal are continuing their work over the summer to develop curriculum and course materials, including a notebook for the Parachute Course. It is proposed that CSN and NSHE leadership work together to identify grant funds to support course development

in the amount of $2,775 (three IU) per faculty member for five faculty members, totaling $13,875. The total projected compensation, including fringe, will be $14,125.

Curriculum and weekly schedule for Parachute Course

Developed by the Parachute Course Committee: Joseph Chavoya, Monina Deng, Eric Hutchinson, Chris King, and Alok Pandey, Department of Mathematics, CSN

Approved by the Mathematics Department in October 2025 Meeting

PARACHUTE COURSE: Precalculus Foundations (4 + 2 credits, 10 weeks)

Description: (Draft) This course provides an intensive review of algebra and an introduction to key precalculus concepts for students transitioning from MATH 126E. Topics include operations with real numbers, equations, exponents, factoring, rational and radical expressions, functions, graphing, and quadratic models. The course also integrates two credits of mathematical study skills to strengthen problem-solving strategies, organization, and learning persistence.

Course Objectives (Student Learning Outcomes):

- Solve algebraic equations.
- Interpret algebraic equations graphically.
- Solve problems with function notation.

WEEKLY SCHEDULE

CR stands for Corequisite topics.

Week 1 – Arithmetic Review & Algebra Foundations

Math Topics (CR.1–CR.3):

- Integer operations, absolute value, order of operations
- Fractions, decimals, percents, rounding
- Variables, coefficients, combining like terms, distributive property
- Translating verbal statements into algebraic expressions

Study Habits

- Setting goals, time management, and building a study schedule
- Introduction to the Homework Notebook (organization and reflection)
- Become familiar with the various academic and student support resources at CSN
- Discovering what kind of learner, you are

Week 2 – Linear Equations & Absolute Value

Math Topics (CR.4 & CR.6):

- Solving one- and multi-step linear equations
- Solving equations with variables on both sides
- Understanding absolute value and solving $|x–a| = b$
- Interpreting distance on a number line

Study Habits:

- Note-taking strategies for problem-solving steps
- Classwork workbook
- Reading a textbook effectively
- Reflection entry #1: “What do I do when I get stuck?”

Week 3 – Exponents and Polynomials

Math Topics (CR.7–CR.10):

- Laws of exponents (product, power, quotient, zero, negative)
- Simplifying exponential expressions
- Polynomial definitions and classifications
- Adding, subtracting, and multiplying polynomials (FOIL, binomial expansions)

Study Habits:

- Building persistence through practice
- Organizing multi-step work
- Notebook check #1

Week 4 – Factoring and Quadratic Equations

Math Topics (CR.15–CR.18):

- Greatest Common Factor (GCF) and factoring by grouping
- Factoring trinomials ($a=1$, $a\neq1$) and difference of squares

Study Habits:

- Learning from errors: correction entries in homework notebook

- Test preparation techniques for midterm

Week 5 – Exponents and Radicals (Advanced)

Math Topics (CR.11–CR.14):

- Rational exponents and radical notation
- Simplifying square roots and cube roots
- Operations with radicals (add, subtract, multiply, rationalize denominators)

Study Habits:

- Reflective entry #2: “How has my confidence changed since Week 1?”
- Confidence and growth mindset

Week 6 – Rational Expressions

Math Topics (CR.18–CR.22):

- Solving quadratic equations by factoring and quadratic formula
- Simplifying, multiplying/dividing, adding/subtracting rational expressions
- Solving rational equations (CR.23)

Study Habits:

- Managing frustration: strategies for multi-step problems
- Using peer study groups and tutoring centers
- Reviewing grade progress and goal setting

Week 7 – Coordinate Geometry and Graphing

Math Topics (Precalculus 1.1):

- Coordinate plane, plotting points
- x- and y-intercepts, distance formula, midpoint formula
- Graphing linear equations from tables

Study Habits:

- Visual organization of information (graphs and diagrams in notes)

- Using graph paper effectively

Week 8 – Linear Functions

Math Topics (Precalculus 1.2):

- Definition of a function, domain and range from graphs
- Determine if a relation, graph, or equation is a function
- Evaluate functions at numbers and expressions (x+h)
- Evaluate functions from graphs
- Function notation and interpretation in context

Study Habits:

- Linking symbolic & graphical thinking
- Notebook check #2

Week 9 – Quadratic and Exponential Functions

Math Topics (Precalculus 1.4):

- Slope formula, average rate of change
- Equations of lines (point-slope, slope-intercept, intercept form
- Graphing lines; horizontal & vertical lines

Study Habits:

- Exam planning
- Test-correction strategies

Week 10 – Quadratic & Exponential Functions and Applications

Math Topics: (Precalculus 2.2)

- Vertex & standard forms of quadratic functions
- Vertex, intercepts, axis of symmetry, domain and range, graph by plotting points
- Quadratic modeling:, revenue, projectile motion

Study Habits:

- Preparing for final exams with planning and stress management
- Final reflection essay: “How my study habits changed”
- Portfolio submission

Week 11 – Final Exam Week

Homework Notebook (Integrated Component)

- Students maintain a dedicated notebook (physical or digital)
- Weekly checks
- Includes examples, corrections, reflections, and formulas learned
- Final submission includes summary reflection on growth

Reference

1. Lindell, Rebecca, Coulombe, Patrick, and Saul, Jeff (2016): *Using a parachute course to retain students in introductory physics courses*; 2016 PERC Proceedings, edited by Jones, Ding, and Traxler; Peer-reviewed; published by the American Association of Physics Teachers under a creative Commons Attribution 3.0 license.