



WISCONSIN
INDIANHEAD
TECHNICAL
COLLEGE

SCIENCE GENERAL STUDIES

**Wisconsin Indianhead Technical College
80600 Science**

2015
Program Review

and

Improvement Plan

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General Studies

General Information

General Studies offers courses in communication, mathematics, science, social science, and behavioral science that provide the foundation for degree, certificate, and diploma programs at WITC. A General Studies certificate is also offered.

Prepared Learner courses equip students with the skills necessary to master college-level curricula. Accuplacer test scores, academic history, self-awareness, and/or length of time away from formal education steer students to these courses. Prepared Learner courses carry college credits and are eligible for financial aid. They cannot be counted for degree credit. Students whose placement scores require Prepared Learner enrollment must complete each required class with a grade of C or higher before registering for the subsequent General Studies course.

Basic Education offers individualized and group instruction in English, social studies, science, reading, mathematics, English Language Learning (ELL), civics, health, career exploration, and employability skills. Persons may attend classes to prepare for entry into specific WITC courses, to receive academic support with current program course materials, to prepare for employment, to increase knowledge of oral and written communication, and to fulfill personal goals. GED/HSED preparation and testing services are also available.

Campus:



WISCONSIN
INDIANHEAD
TECHNICAL
COLLEGE

Ashland
New Richmond
Rice Lake
Superior

General Studies Courses

Communication

- 10801195 Written Communication ▲
- 10801196 Oral/Interpersonal Communication
- 10801197 Technical Reporting ▲
- 10801198 Speech
- 32801361 Applied Communications 1
- 32801363 Applied Communications 2 ▲

Mathematics

- 10804107 College Mathematics ▲
- 10804113 College Technical Mathematics 1A ▲
- 10804114 College Technical Mathematics 1B ▲
- 10804115 College Technical Mathematics 1 ▲
- 10804116 College Technical Mathematics 2 ▲
- 10804123 Math with Business Applications ▲
- 10804133 Mathematics and Logic ▲
- 10804138 Math for Health Professionals ▲
- 10804189 Introductory Statistics ▲
- 32804355 Math 355
- 32804364 Math 364 ▲
- 32804365 Math 365 ▲
- 32804373 Math 373
- 32804383 Math 383 ▲

Science

- 10806112 Principles of Sustainability
- 10806122 Natural Sciences in Society
- 10806134 General Chemistry ▲
- 10806140 Chemistry
- 10806175 Pathophysiology ▲
- 10806177 General Anatomy and Physiology ▲
- 10806179 Advanced Anatomy and Physiology ▲
- 10806197 Microbiology ▲
- 10806198 Human Biology
- 31806310 Science for Cosmetologists
- 31806352 Applied Physical Science
- 32806300 Applied Materials Science
- 32806351 Applied Science

Social Science

- 10809122 Introduction to American Government
- 10809166 Introduction to Ethics: Theory and Application
- 10809172 Introduction to Diversity Studies
- 10809174 Social Problems ▲
- 10809195 Economics
- 10809196 Introduction to Sociology

Behavioral Science

- 10809159 Abnormal Psychology ▲
- 10809188 Developmental Psychology
- 10809198 Introduction to Psychology
- 32809371 Applied Human Relations

Interdisciplinary

- 10890100 Success Strategies 1
- 10890101 Success Strategies 2 ▲
- 10890105 Job Quest
- 10890120 Service Learning
- 32890300 Contemporary Workplace
- 32890305 Applied Information Resources

Prepared Learner

- 10831103 Intro to College Writing ▲
- 10834109 Pre-Algebra ▲
- 10835103 Study Skills
- 10838104 Intro to College Reading

▲ Requires a prerequisite and/or corequisite that must be completed with a grade point of 2.0 or better unless otherwise specified by program requirements.

Basic Education Courses

Various levels of coursework are offered in the following areas:

- English
- Social Studies
- Science
- Reading
- Mathematics
- English Language Learning (ELL)
- Civics
- Health
- Employability Skills
- GED/HSED Orientation

General Studies Course Descriptions

Science

10806112

Principles of Sustainability - Credits: 3

Prepares the student to develop sustainable literacy, analyze the interconnections among the physical and biological sciences and environmental systems, summarize the effects of sustainability on health and well-being, analyze connections among social, economic, and environmental systems, employ energy conservation strategies to reduce the use of fossil fuels, investigate alternative energy options, evaluate options to current waste disposal and recycling in the U.S., and analyze approaches used by your community to promote and implement sustainability.

10806122

Natural Sciences in Society - Credits: 3

Focuses on the history, philosophy, common concepts and current issues of natural science which has impacted the United States and global society. Explores processes required to analyze natural science issues. Learners correlate science issues to personal and professional experiences.

10806134

General Chemistry - Credits: 4

Covers the fundamentals of chemistry. Topics include the metric system, problem solving, periodic relationships, chemical reactions, chemical equilibrium, properties of water, acids, bases, and salts; and gas laws. **PREREQUISITE:** 10804113 College Technical Math 1A or other college-level algebra course.

10806140

Chemistry - Credits: 1

This is a combined lecture/laboratory course for those entering health occupations programs. You will study chemical bonds and the solution process; chemical reactions and chemical equilibria; and acids and bases. You will participate in labs where appropriate. No previous background in chemistry is required. Good math skills are helpful.

10806175

Pathophysiology - Credits: 3

This introductory course in pathophysiology covers topics related to alterations of homeostasis and the associated pathophysiological processes. Course studies include the processes involved that generate illness; signs and symptoms of commonly occurring illness states; and effects of disease processes on the cell. Review of normal homeostatic mechanisms is included. Study of these fundamental processes in relation to the pathophysiological processes can enable the students to apply this knowledge to clinical situations. **PREREQUISITES:** 10806179 Advanced Anatomy and Physiology and 10806197 Microbiology.

10806177

General Anatomy and Physiology - Credits: 4

Examines basic concepts of human anatomy and physiology as they relate to health sciences. Using a body systems approach, the course emphasizes the interrelationships between structure and function at the gross and microscopic levels of organization of the entire human body. It is intended to prepare health care professionals who need to apply basic concepts of whole body anatomy and physiology to informed decision-making and professional communication with colleagues and patients. This course includes a one-credit lab component that supports the course objectives. (This course also provides the foundation, and is prerequisite to, Advanced Anatomy and Physiology.) **PREREQUISITE:** One year of High School Chemistry or one semester of lab-based college Chemistry, preferably within the last five years.

10806179

Advanced Anatomy and Physiology - Credits: 4

Advanced Anatomy and Physiology is the second semester in a two-semester sequence in which normal human anatomy and physiology are studied using a body systems approach with emphasis on the interrelationships between form and function at the gross and microscopic levels of organization. Instructional delivery within a classroom and laboratory setting. Experimentation within a science lab will include analysis of cellular metabolism, the individual components of body systems such as the nervous, neuromuscular, cardiovascular, and urinary. Continued examination of homeostatic mechanisms and their relationship to fluid, electrolyte, acid-base balance and blood. Integration of genetics to human reproduction and development are also included in this course. **PREREQUISITE:** 10806177 General Anatomy and Physiology, preferably within the last five years.

10806197

Microbiology - Credits: 4

Examines microbial structure, metabolism, genetics, growth and the relationship between humans and microorganisms. Addresses disease production, epidemiology, host defense mechanisms and the medical impact of microbes. Examines the role of microbes in the environment, industry and biotechnology. This course includes a one-credit lab component that supports the course objectives. **PREREQUISITE:** 10806177 General Anatomy and Physiology, preferably within the last five years.

10806198

Human Biology - Credits: 4

This is an introductory course that emphasizes the structure of the human body and the functional interrelationships of the body's systems. Consideration is given to the human body and disease, human genetics, human ecology, and the role that humans play in the environment. The course consists of three hours of lecture and two hours of lab per week. **Note:** this course does not meet requirements for or substitute for General Anatomy and Physiology or Anatomy & Physiology I and II.

31806310

Science for Cosmetologists - Credits: 3

This course explores the fundamental concepts of physics, chemistry, human anatomy, physiology, and disease. Students examine and learn to apply scientific methods and reasoning to develop problem-solving skills. This course provides the student with a broad, integrated understanding of the impact of the various sciences on cosmetology processes, and prepares the participant to apply scientific principles in the cosmetology field.

31806352

Applied Physical Science - Credits: 2

Course contains a variety of applied physical science principles including light, color, chemistry, material properties, and direct current electricity. These principles will be applied to applications within the trades.

32806300

Applied Materials Science - Credits: 2

This is a one-semester course consisting of a study of the chemical and physical properties of industrial materials. Areas of study include properties of metals, plastics, and ceramics with the primary emphasis being on metals.

32806351

Applied Science - Credits: 2

Applied Science is a basic science course that applies concepts from physics and chemistry to the trades and industry. Topics include work, power, energy, the principles of fluids applied to hydraulics and pneumatics, and the basic properties of solids.

Social Science

10809122

Introduction to American Government - Credits: 3

Introduces American political processes and institutions. Focuses on rights and responsibilities of citizens and the process of participatory democracy. Learners examine the complexity of the separation of powers and checks and balances. Explores the role of the media, interest groups, political parties, and public opinion in the political process. Also explores the role of state and national government in our federal system.

10809166

Introduction to Ethics: Theory and Application - Credits: 3

This course provides a basic understanding of the theoretical foundations of ethical thought. Diverse ethical perspectives will be used to analyze and compare relevant issues. Students will critically evaluate individual, social and/or professional standards of behavior, and apply a systematic decision-making process to these situations.

10809172

Introduction to Diversity Studies - Credits: 3

Introduces learners to the study of diversity from a local to a global environment using a holistic, interdisciplinary approach. Encourages self-exploration and prepares the learner to work in a diverse environment. In addition to an analysis of majority/minority relations in a multicultural context, the primary topics of race, ethnicity, age, gender, class, sexual orientation, disability, religion are explored.

10809174

Social Problems - Credits: 3

Explores the causes of and possible solutions to selected social problems, such as inequality, crime and deviance, and poverty. Students will examine the interrelationship of social problems and their roots in fundamental societal institutions. **PREREQUISITE:** 10809196 Introduction to Sociology.

10809195

Economics - Credits: 3

This course is designed to give an overview of how a market-oriented economic system operates, and it surveys the factors which influence national economic policy. Basic concepts and analyses are illustrated by reference to a variety of contemporary problems and public policy issues. Concepts include scarcity, resources, alternative economic systems, growth, supply and demand, monetary and fiscal policy, inflation, unemployment and global economic issues.

10809196

Introduction to Sociology - Credits: 3

Introduces students to the basic concepts of sociology: culture, socialization, social stratification, multi-culturalism, and the five institutions, including family, government, economics, religion, and education. Other topics include demography, deviance, technology, environment, social issues, social change, social organization, and workplace issues.

TEAM MEMBERSHIP

ACADEMIC PROGRAM REVIEW PROFILE – General Studies

Discipline Number & Name		
Science Department 80600		
Program Academic Dean	Title/Location	Phone and e-mail
Ted May	Academic Dean Ashland	Ext. 3252 ted.may@witc.edu
Team Lead(s)	Title/Location	Phone and e-mail
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Team Members	Title/Location	Phone and e-mail
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Cindy Miller	Admissions Advisor WITC Superior	Ext. 6243 cindy.miller@witc.edu
Kelley Kepler	Communications Faculty WITC New Richmond	Ext. 4383 kelley.kepler@witc.edu
Scott Leonard	Counselor WITC Ashland	Ext. 3117 scott.leonard@witc.edu

Discipline Information:			
Number of students served in most recent school year:		1036 (unduplicated enrollments for FY2014)	
Number of Faculty: 7	FT – 5	PT - 2	
Number of Courses: 13	General College – 0	Diploma – 4	Associate Degree – 9
Number of Courses in each of the following delivery modes: (there may be duplication for courses offered in multiple modes)			
Classroom:		12	
Online:		3	
ITV/IP:		4	
In Person/Web Blended:		3	

Discipline affiliations, memberships, etc.:	None

Note: The affiliation and membership information reported will be listed in the annual WITC Fact Book.

SELF-STUDY REPORT

SELF-STUDY SUMMARY REPORT

Program Information	
Program Name: Science	Team Chair: Lori Cypher and Wendy Dusek
Academic Dean: Ted May	Divisional Dean: Barb Lundberg
Process Used to Complete the Self-Study	
Meeting format (in-person, IP, conference calls etc.)	IPV
Number of meetings	1 with the full team; multiple meetings w/science
How was the self-study handled? (as a group, assigned to individuals to report back to group, etc.)	Group and individuals in groups reporting back to whole group.
Additional comments:	
Summary of Findings	
As you completed this self-study section of the program review, what areas "stand out" in your program? Please explain.	The need to gather accurate data & work on communication across all campus groups.
What has surprised you? Please explain.	The amount of time we have spent so far already on program review; we have spent far more time than we anticipated on program review.
List two or three of the items identified through your self-study that you will focus on to make improvements to your program.	Assessment Collaboration across the college Gathering meaningful information
When/where in your program will you implement these improvements?	We expect to implement improvements across all science courses throughout the district.
What methods (direct or indirect) will you use to assess the success of this implementation?	Frequent follow-up, surveys, direct communication with involved groups.
What new outcomes or benchmarks do you hope to achieve through these recommended changes?	Better opportunities for student learning, continuous improvement of our courses.

SELF-STUDY CATEGORY RESULTS

Program and Category	
Program: Science Department Category: Review of Most Recent Program Improvement Plan (2010-2011)	
PLUSES (Strengths)	DELTAS (Opportunities)
Consistency of Blackboard support for all classes. Faculty members each made instructional changes for the General Anatomy & Physiology (GAP) course, closing the loop effectively from the common course assessment of that class. This led to an increase (by over 5%) in the C or better rate for this course across delivery modes, when compared to the data at the start of the 2010-11 plan. Continued Common Course Assessment with other major science courses, and across all campuses and delivery modes.	Continue to strengthen communication with nursing (ADN) faculty; continue to carry this effort forward into the current program improvement plan.
Select one PLUS item and explain the root cause:	Common assessments for GAP and AAP (combines 2 related items) the root cause was sequential: <ul style="list-style-type: none"> • Developed and implemented one course at a time to modify/make changes and analyze accordingly • Utilized EdAssess software to assist in analysis Set up and sustained communication among all health science faculty and shared best practices among team members.
Select one DELTA item and explain the root cause:	The science faculty has no formal communication plan with nursing faculty. A possible root cause may be that there have been many recent changes in leadership and faculty in nursing program.
What items in this category MUST be addressed on our improvement plan?	Try to re-strengthen the lines of communication with appropriate program faculty in the future.
What items in this category MIGHT be addressed on the improvement plan?	Be more consistent (and meaningfully) present at the various key program advisory committee meetings.
What items in this category may be considered a BEST PRACTICE OR INNOVATION?	Development and use of common assessments. This is a best practice in how to share outcomes and strategies among faculty members in response to the common assessments. Innovation is the way EdAssess is used to analyze the common assessment data.

Team Rating

Please indicate by an (X) the team rating of your program on this category.

<i>All areas need improvement</i>	<i>Some areas meet expectations, but most areas need improvement</i>	<i>All areas meet expectations —few areas need improvement</i>	<u>Exemplary</u> — <i>all areas exceed expectations—use as a model for other programs</i>
		X	
Additional Comments: (optional)			

SELF-STUDY CATEGORY RESULTS

Program and Category	
Program: Science Department Category: WITC Program Statistics	
PLUSES (Strengths)	DELTAS (Opportunities)
<p>Science department C or better rates have improved since the implementation of the first common assessments.</p> <p>Continue to review/evaluate C or better rates for each course semester-by-semester to be able to target areas for possible improvement.</p>	<p>Still room for improvement in some delivery modes (e.g., online Advanced A&P (AAP), relative to Hybrid or face-to-face).</p> <p>Students are getting pushed into online courses when it may not be the optimal learning mode for that student. (How do we best place students into a course-online vs face to face vs web blended class)?</p> <p>Need to re-evaluate data on chemistry (via high school or the WITC 1-credit chemistry class), and student success in General A&P (GAP) – and other variables that may be influencing student C or better rates.</p>
<p>Select one PLUS item and explain the root cause:</p>	<p>Improved C or better rates for GAP and AAP courses.</p> <p>Root cause: using “closing the loop” processes with Common Course assessments, sharing best practices among all instructors, and all instructors address all of the competencies, and quality of instructors who have all been teaching at least six years here.</p>
<p>Select one DELTA item and explain the root cause:</p>	<p>Students can get “pushed” into online (e.g., if the face to face class gets cancelled due to low enrollments and student is given the choice to “take it online”).</p> <p>Root causes:</p> <ul style="list-style-type: none"> • WITC lacks an effective indicator to see if a student would be a good fit for online courses (Smarter Measure is what is used, but how effective is it? Is this being evaluated?). • Some of students in online course are not ready for this very different learning expectation/experience.
<p>What items in this category MUST be addressed on our improvement plan?</p>	<p>Success in each course by delivery mode.</p>
<p>What items in this category MIGHT be addressed on the improvement plan?</p>	<p>Success in each course linked with programs that include each course (this would pertain largely with General A&P alone).</p>

What items in this category may be considered a BEST PRACTICE OR INNOVATION?	C or better rate improvement (now over 80% for all three core health science courses – very high in the state) - Best practice is the strong course assessment process described above.		
Team Rating Please indicate by an (X) the team rating of your program on this category.			
<i>All areas need improvement</i>	<i>Some areas meet expectations, but most areas need improvement</i>	<i>All areas meet expectations —few areas need improvement</i>	<i><u>Exemplary</u>—all areas exceed expectations—use as a model for other programs</i>
		X	
Additional Comments: (optional)			

SELF-STUDY CATEGORY RESULTS

Program and Category	
Program: Science Department Category: Curriculum	
PLUSES (Strengths)	DELTAS (Opportunities)
<p>Course Outcome Summaries are state-set and of good academic quality.</p> <p>WITC faculty retain the ability to make changes to the Learning Outcomes (LO's) as deemed important (so there's room for our own input). College-wide curriculum implemented by all instructors for every class.</p> <p>Our one-credit Chemistry pre-req. is tailored to the needs of General Anatomy & Physiology (GAP) students.</p>	<p>Students are able to take Advanced Anatomy & Physiology (AAP) and Microbiology simultaneously; sometimes this is overwhelming in quantity, and can be confusing to study in two different courses with high levels of critical thinking required.</p> <p>Pathophysiology is a non-required course for the nursing Program (though the higher level critical thinking skills learned in the course are valuable for nursing students).</p> <p>The entire team has not always been fully included, informed or notified when course revisions were made.</p> <p>Biochemistry, which is a part of the curriculum in some WTCS nursing programs in the state, is not currently offered WITC; possible to consider?</p> <p>Opportunities for professional development to help develop student critical thinking skills, and explore means to assess course rigor.</p> <p>There have been some concerns expressed that the science courses are not sufficiently preparing the students with the depth or breadth of what they need in A&P or Microbiology.</p>
Select one PLUS item and explain the root cause:	<p>Course Outcome Summaries are of good quality.</p> <p>Root cause: We have science team members involved at the state level to provide and share our valuable input when changes are made/anticipated.</p>
Select one DELTA item and explain the root cause:	<p>Science team strives to provide exemplary support to the nursing program, and enrollments are low in Pathophysiology, a highly valued course for program students.</p> <p>Root cause: Pathophysiology used to be a required course in the nursing program but it is now a "recommended elective," but students often have to pay out-of-pocket for the course when they are able to take the class.</p>
What items in this category MUST be addressed on our improvement plan?	<p>Assess whether or not the science courses have met student needs (across all the programs served); and/or see if there are other courses students wish they could have taken here.</p>
What items in this category MIGHT be	<p>To enhance viable numbers to be able to regularly offer Pathophysiology courses for students who want them, the science team will work with nursing faculty to see if this could be changed.</p>

addressed on the improvement plan?			
What items in this category may be considered a BEST PRACTICE OR INNOVATION?	<p>Best practice: Having a presence at the state level to make sure our input is heard when it comes to Course Outcome Summary changes.</p> <p>Innovation: Offering a 1-credit Chemistry class for students who need it to get into GAP; we are the only WTCS college to offer such a course.</p>		
Team Rating Please indicate by an (X) the team rating of your program on this category.			
<i>All areas need improvement</i>	<i>Some areas meet expectations, but most areas need improvement</i>	<i>All areas meet expectations —few areas need improvement</i>	<i>Exemplary—all areas exceed expectations—use as a model for other programs</i>
		X	
Additional Comments: (optional)			

SELF-STUDY CATEGORY RESULTS

Program and Category	
Program: Science Department Category: Assessment of Student Learning	
PLUSES (Strengths)	DELTAS (Opportunities)
<p>Common Assessments have been developed using Competencies and Learning Objectives in the four main/common Science courses.</p> <p>Faculty “close the loop” in sharing best practices based on test results.</p> <p>Faculty use Ed Assess to analyze and evaluate student learning – a testing format similar to that used within the nursing program.</p> <p>Faculty work as a collaborative team in the development and ongoing analysis of the common assessments.</p> <p>Faculty use a hands-on learning approach, which is helpful for our students, with consistent positive feedback from Admissions Advisors and/or outside sources.</p>	<p>The challenge of developing an effective assessment strategy to determine if WITC’s Chemistry course is sufficient preparation for General A&P (GAP) course.</p> <p>Evaluating opportunities for assessing critical thinking more effectively within the science courses where this is a key/important outcome (Advanced A&P (AAP) and Microbiology especially) possibly using the rubrics within EdAssess to do so.</p> <p>Continue to explore other facets of the common assessment process to broaden and deepen the ongoing benefits across the courses being assessed.</p> <p>Lack of specific study skills prep for all science courses.</p> <p>Tutoring support for science courses is inconsistent across campuses.</p> <p>With the exception of the Rice Lake campus, there is no available “open” science lab time (free time when students can be in the lab studying).</p> <p>There are concerns with test security/authenticity.</p>
Select one PLUS item and explain the root cause:	<p>Common assessment process used to evaluate student learning. Root cause: Science team implemented common assessments for four common courses (Chemistry, GAP, AAP, & Micro) and closed the loop effectively/collaboratively.</p>
Select one DELTA item and explain the root cause:	<p>The science faculty team would like to be <u>certain</u> that the one-credit chemistry course and incoming student study skills meet-the needs of the General A&P (GAP) course.</p> <p>Determine if the existing Chemistry course adequately prepares students for the start of GAP. Possible root cause: evaluate whether or not the chemistry course provides students with enough science background to ensure success in GAP.</p> <p>Assess study skills preparation in science area specifically, regarding current success frequencies.</p>

What items in this category MUST be addressed on our improvement plan?	Gather information (survey students, counselors, etc.) on what students need to be successful in Chemistry (e.g., what do learners need prior to starting the chemistry course?)		
What items in this category MIGHT be addressed on the improvement plan?	Evaluate whether or not the common assessments in AAP and Micro sufficiently assess Critical thinking skills – and develop strategies to better address these.		
What items in this category may be considered a BEST PRACTICE OR INNOVATION?	The science team’s common assessments are used, modified and outcomes analyzed as a team every year.		
Team Rating			
Please indicate by an (X) the team rating of your program on this category.			
<i>All areas need improvement</i>	<i>Some areas meet expectations, but most areas need improvement</i>	<i>All areas meet expectations –few areas need improvement</i>	<i>Exemplary—all areas exceed expectations—use as a model for other programs</i>
	X		
Additional Comments: (optional)			

SELF-STUDY CATEGORY RESULTS

Program and Category	
Program: Science Department Category: Advisory Committees	
PLUSES (Strengths)	DELTAS (Opportunities)
Health Science faculty attend advisory committee meetings for other programs. The faculty each attend <i>different</i> advisory committee meetings (so that broadens our perspective).	There may be opportunities to provide more significant input from the science team. There are often schedule conflicts (so the faculty are unable to attend the meetings we want to attend). Should be sure to have a presence on all advisory committees for programs that our classes support.
Select one PLUS item and explain the root cause:	Attending other program advisory committee meetings Root cause: In order to keep current with changes in the fields that our science courses serve, and want to best meet their needs and provide input to support those programs.
Select one DELTA item and explain the root cause:	Science faculty members have not always had a presence at the Advisory Committee meetings for all these programs – due to: (1) Inconsistency across the district of invitations to these meetings; and (2) Scheduling conflicts.
What items in this category MUST be addressed on the upcoming improvement plan?	Ensuring that a science team member is present on advisory committees for ALL programs that include a science course.
What items in this category MIGHT be addressed on the improvement plan?	Establish consistency in invitation process across campuses for advisory meetings.
What items in this category may be considered a BEST PRACTICE OR INNOVATION?	Attending advisory committee meetings, and with science faculty at different meetings having a presence in many different programs, the report-out is shared with the team. <u>Benefits:</u>

<p>Faculty participation in discussion and attendance can bring creative solutions for other programs.</p> <p>Faculty can gather good take-away information from conversations with people in the field to better prepare our students.</p> <p>Faculty attend advisory committee meetings with thoughtful, meaningful input.</p>			
<p>Team Rating</p> <p>Please indicate by an (X) the team rating of your program on this category.</p>			
<i>All areas need improvement</i>	<i>Some areas meet expectations, but most areas need improvement</i>	<i>All areas meet expectations - few areas need improvement</i>	<i><u>Exemplary</u>—all areas exceed expectations—use as a model for other programs</i>
	X		
<p>Additional Comments: (optional)</p>			
<p> </p>			

SELF-STUDY CATEGORY RESULTS

Program and Category	
Program: Science Department Category: Equipment & Facilities	
PLUSES (Strengths)	DELTAS (Opportunities)
<p>Full up-to-date Science Labs – At the start of this self-study, the New Richmond, Rice Lake and Superior campuses have up-to-date science labs. Plans are in place to develop one for the Ashland campus in summer 2015. Faculty had significant input with ideas for remodeling and construction.</p>	<p>Lab room demands at the Superior and New Richmond campuses by programs beyond the science classes has resulted in some scheduling challenges and minor conflicts.</p> <p>Lack of Science “open lab” times for students to study/prepare for courses.</p> <p>Concern over health and safety with regard to other users in the science lab who may not consistently follow the same safety and cleanliness procedures/guidelines.</p>
<p>Select one PLUS item and explain the root cause:</p>	<p>High-quality science labs will be functional at all four campuses by the start of the fall semester 2015.</p>
<p>Select one DELTA item and explain the root cause:</p>	<p>Lack of open lab time due to not being able to “leave the room unlocked” for students to get in and study (requiring staffing)</p>
<p>What items in this category MUST be addressed on our improvement plan?</p>	<p>Common guidelines with regard to use of science labs across the district – such as food in the classroom, clean-up after activities, and so forth.</p>
<p>What items in this category MIGHT be addressed on the improvement plan?</p>	<p>Scheduling some availability of open science lab times (for students to use for structured study time--would have to be staffed).</p>
<p>What items in this category may be considered a BEST PRACTICE OR INNOVATION?</p>	<p>The Science team does an excellent job of collaborating on projects, sharing ideas – overall portraying a great level of trust and the ability to work together.</p>

Team Rating

Please indicate by an (X) the team rating of your program on this category.

<i>All areas need improvement</i>	<i>Some areas meet expectations, but most areas need improvement</i>	<i>All areas meet expectations —few areas need improvement</i>	<i><u>Exemplary</u>—all areas exceed expectations—use as a model for other programs</i>
			X
Additional Comments: (optional)			

SELF-STUDY CATEGORY RESULTS

Program and Category	
Program: Science Department Category: Staff Development & Program Innovation	
PLUSES (Strengths)	DELTAS (Opportunities)
<p>All full time faculty members have annual Goals/Performance Reviews & Learning Plans completed.</p> <p>All instructors are evaluated by students using the online instructor evaluation process.</p> <p>Development, use, and outcomes of common assessments presented at WTCS General Education Conference multiple times.</p> <p>Awesome faculty who care about their students' success.</p>	<p>Need for better orientation/mentoring/coaching of adjunct instructors who do not have teaching experience, especially in the area of Blackboard use/online delivery.</p> <p>Adjunct instructors not required to attend in-service meetings that concern WIDS, Blackboard, technology updates, student success, etc.</p> <p>Make better, more effective use of time at faculty teaching and learning days (it's difficult to take time away from classes during the week to attend training sessions).</p> <p>Develop process to extend to PT faculty invitations to all meetings FT faculty are involved in.</p> <p>Lack of availability of funds for professional development for GS faculty.</p>
<p>Select one PLUS item and explain the root cause:</p>	<p>Presentation of common assessment process. Root Cause: To share our means of analyzing and evaluating student learning as a best practice for others to follow.</p>
<p>Select one DELTA item and explain the root cause:</p>	<p>Need for better orientation/mentoring/coaching of adjunct instructors who do not have teaching experience. Root cause: Adjunct are not required to be on-campus except when they are teaching.</p>
<p>What items in this category MUST be addressed on our improvement plan?</p>	<p>Need for better orientation/mentoring of adjunct (and new full time) instructors who do not have teaching experience, especially with Blackboard.</p>
<p>What items in this category MIGHT be</p>	<p>All instructors are evaluated by students using the online instructor evaluation process, and we haven't figured out how to get more students to participate in this process. We could possibly develop our own surveys</p>

addressed on the improvement plan?	(specific to science courses)...current survey is very generic (what motivates students to take the survey?)		
What items in this category may be considered a BEST PRACTICE OR INNOVATION?	Outstanding faculty who have developed collegiality and collaboration in their professional growth as a team.		
Team Rating: Please indicate by an (X) the team rating of your program on this category.			
<i>All areas need improvement</i>	<i>Some areas meet expectations, but most areas need improvement</i>	<i>All areas meet expectations —few areas need improvement</i>	<i><u>Exemplary</u>—all areas exceed expectations—use as a model for other programs</i>
	X		
Additional Comments: (optional)			

SELF-STUDY CATEGORY RESULTS

Program and Category	
<p>Program: Program: Science Department</p> <p>Category: Collaboration Across the College.</p>	
PLUSES (Strengths)	DELTAS (Opportunities)
<p>The science faculty collaborate with campus counselors to advise students who are struggling, and work to provide tutoring and other services.</p> <p>Science team members meet regularly via IPV.</p> <p>Science classes support many programs and students, including HIT, ADN, OTA, dental, ECE, Cosmo, Gerontology (future) and paramedic.</p> <p>Participate in program review for various health programs that we serve.</p> <p>Advisory Committee roles.</p> <p>Collaboration with Student Services when advising students.</p>	<p>Meetings with ADN, HIT, and OTA program faculty are not routinely established.</p> <p>The design and variable (among campuses) participation in the petition process for the nursing program impacts scheduling, student attendance and other matters where science faculty interface with students in their progression toward and through the ADN program.</p> <p>Early warning notices sent to different campuses; there is no follow up for online instructors. Part time and youth option students are falling through the cracks.</p> <p>Increase communication between counselors/faculty across the campuses to be sure students are informed of all of their options for classes (online, in-person, and what hybrid/web blend means).</p> <p>Science faculty have not been kept fully informed with programs concerning advising issues.</p> <p>Continued emphasis on communication with program classes, admissions, and advisors.</p>
<p>Select one PLUS item and explain the root cause:</p>	<p>Collaboration with Student Services when advising students.</p> <p>Root Cause: Health Science faculty work with students who are petitioning into the ADN program with regard to their successful completion of general studies courses.</p>
<p>Select one DELTA item and explain the root cause:</p>	<p>Meetings with ADN, OTA, and HIT program faculty are not routinely established.</p> <p>Root Cause: Schedules do not always permit faculty to meet. There has also been a change in leadership and faculty within some programs that makes this difficult.</p>

<p>What items in this category MUST be addressed on our improvement plan?</p>	<p>Meetings with ADN, OTA, and HIT program faculty are not routinely held. How can we improve communication with other program faculty to better serve our students?</p> <p>Lack of consistency with follow-up when we send referrals for struggling students (not knowing who to reach out to, especially with online students)</p>		
<p>What items in this category MIGHT be addressed on the improvement plan?</p>	<p>Classes support many programs and students. What can we do to improve our scope of teaching to various program students?</p>		
<p>What items in this category may be considered a BEST PRACTICE OR INNOVATION?</p>	<p>Science Team collaboration (closing the loop, sharing information learned at advisory meetings, etc.)</p>		
<p>Team Rating Please indicate by an (X) the team rating of your program on this category.</p>			
<p><i>All areas need improvement</i></p>	<p><i>Some areas meet expectations, but most areas need improvement</i></p>	<p><i>All areas meet expectations —few areas need improvement</i></p>	<p><i><u>Exemplary</u>—all areas exceed expectations—use as a model for other programs</i></p>
		<p>X</p>	
<p>Additional Comments: (optional)</p>			

WITC QRP & PERKINS DATA REVIEW

WTCS QRP SCORECARD ANALYSIS WORKSHEET

Program:	Science Department 80600			
Best Practice Analysis				
Indicator	Total in Cohort	Total Achieved	Actual	Best Practice or Innovation – Describe and include how this has contributed to your high actual results for this indicator.
CG01 AAS Course Completion (for all General Studies)	CG01 2014 - 1888 2013 - 2140 2012 - 1902	CG01 2014 - 1147 2013 - 1377 2012 - 1311	CG01 2014 – 60.7% 2013 – 64.3% 2012 – 68.9%	Data Analysis: Over the three years, the average “actual” achievement for all General Studies – comes to 64.7%. The average actual for Natural Sciences comes to 80.0%. Based upon these indicators, students are achieving in Natural Sciences at an average of 15.3% percentage points higher. In addition, the <u>decline</u> (percentage points) in achievement between 2012 and 2014 for all general studies was 8.2%, whereas that for natural sciences was 5.6%.
CG07 AAS Course Completion (for all Natural Sciences)	CG07 2014 – 560 2013 - 632 2012 - 495	CG07 2014 - 428 2013 - 515 2012 - 406	CG07 2014 – 76.4% 2013 – 81.4% 2012 – 82%	Best practice: I would attribute the <u>relative</u> success of the science faculty in facilitating student success to the strength of the team, their ongoing collaborative course assessment work, and instructional improvements based upon these assessments and their follow-through with one another.
Potential Action Analysis				
Indicator	Total in Cohort	Total Achieved	Actual	Potential Action – Describe what action(s) could possibly be taken to improve this indicator and why it might work.
CG07 AAS Course Completion (for all Natural Sciences)	CG07 2014 – 560 2013 - 632 2012 - 495	CG07 2014 - 428 2013 - 515 2012 - 406	CG07 2014 – 76.4% 2013 – 81.4% 2012 – 82%	Continuous Collaborative Improvement: Looking at these data as analyzed above, while the data still show a decline in the achievement rates for students in the health sciences, achievement rates continue to be quite strong. There is a decline of 5.6 percentage points in actual achievement. This data indicates the percentage of students who took at least one 10-806 science course and were successful in 100% of the science classes that they took. The Science faculty team will continue to use their common course assessment processes in the year ahead. This will be most important in the several years ahead, to assure they are able to maintain the high level of student achievement during times of change. In particular, they will be evaluating the “fit” or adequacy of the one-credit chemistry course prior to General A&P, and they will also be starting with a new common text for both A&P courses (which could impact student outcomes). At these

				times, the common course assessment will be particularly helpful to enable fairly prompt responses to any concerns or problems that may emerge.
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FUTURE TRENDS AND EXTERNAL FACTORS

Program	Science Department 80600
Future Trends	
•	The number of students enrolled in the health sciences has been declining for the past several years. This trend may continue and may impact the frequency of course offerings and coordination with the programs to assure continued strong connections with the evolving needs of programs.
•	Students continue to demand flexibility in course-delivery, so that we are seeing continued interest in online or hybrid course deliveries. However, it appears that many students appreciate the new science labs on each of the WITC campuses, and this has kept our numbers fairly high in the web-enhanced and hybrid courses.
•	WITC is embarking on some additional course- and program-transfer agreements with a number of colleges, which may provide additional opportunities for science course instruction. This may influence the mix of courses the faculty are teaching.
Employment Trends	
Local	NA for Science alone
•	
State	NA for Science alone
•	
External Factors	
•	The enrollment numbers for the sciences are subject to the evolving needs of programs. The Science Department serves in a supportive role, and will continue to be subject to the program needs in this capacity.
•	

IMPROVEMENT PLAN

Academic Program Improvement Plan

PROGRAM:	General Studies-Science 80600				
Defined Outcome: Develop a written communications strategy (meetings with faculty, Advisory Committees, and so forth) for at least four of the programs served by the health sciences – ADN, Gerontology, HIT, HSA, OTA and Paramedic Technician.	QRP Indicator #	Perkins Indicator #	Responsibility	Timeline	Resources
	NA	NA			
Action Plan/Action Items: 1. Create a form to use for consistent documentation of communication, plusses, opportunities for improvement, and to track improvements/solutions that surface during conversations with other programs. 2. Assess each program for program-science course complementarity, to use as a base-level measure, and then to monitor improvements throughout the program improvement time-period. 3. Compare and share notes from each campus as part of our monthly IPV meetings (add as running agenda item for each team meeting).			<u>Lead:</u> Lori Cypher, with Health Science Faculty and Dean	1. 2016 2. 2016-2018 3. 2016-2018	Instructors and deans for each program; students (current and past); and staff who schedule advisory committee meetings at each campus (Trixie Felix - Ash, Tonja Hensel - NR, Margie Ince – RL, Lynn Lehman – Sup)

Update: (A mid-year and year-end update will be required each year during implementation.)

May 2016:

In January 2016, we created this form and added it as an ongoing agenda item to our meetings for the semester.

December 2016:

In January 2016, we created this form and added it as an ongoing agenda item to our meetings for the semester.

June 2017:

In January 2016, we created this form and added it as an ongoing agenda item to our meetings for each semester. We also created a button in Blackboard for a repository to store these completed forms/documents. We found that we communicate with programs on a regular basis and there is evidence of strong connections being made in various programs regardless of this “form” that we created. Having this item as a regular agenda item has brought this ongoing involvement to our attention, though we have found that utilization of a “form” isn’t the key point here (rather it’s discussing this at our monthly ITV meetings). The Nursing program, in particular, needs continuous communication due to the amount of faculty turnover in that program.

January 2018:

We will continue to communicate with programs, though will likely end our tracking form, as we found that to be somewhat redundant. Having it as a regular agenda item will keep it on our radar, and assure that we follow through on any matters of concern – such as the special effort in nursing due to program faculty turnover. We will also make sure we are included in conversations with new programs that have science classes (such as Veterinary Tech) right from the beginning, including involvement with their ongoing Advisory Committee.

Academic Program Improvement Plan

PROGRAM:	General Studies-Science 80600				
Defined Outcome: Monitor and document communications, strengths, areas for improvement, and improvements made, as ongoing assessment of extent to which the faculty are meeting the needs of each program and their students.	QRP Indicator #	Perkins Indicator #	Responsibility	Timeline	Resources
	NA	NA			
Action Plan/Action Items:			<u>Lead:</u> Jodie Karr, with Health Science Faculty and Dean	Start after plan is set up in the preceding outcome; continue to document through 2018	Instructors and deans for each program; students (current and past)
<ol style="list-style-type: none"> 1. Assess communications, highlight and strengthen positives, identify areas of concern and develop appropriate action/evaluation plans. 2. Identify learning gaps between the science and program courses, then develop and document collaborative solutions to close those gaps. 					
<p>Update: (A mid-year and year-end update will be required each year during implementation.)</p> <p>May 2016: In March 2016, the health science faculty met with ADN faculty to discuss various topics. It was an excellent first meeting, and one that helped us realize the merits of our plans for collaboration with programs using our courses. We will use the form created above to expand our conversations and monitor benefits of these meetings.</p> <p>December 2016: We plan to set up a meeting with OTA faculty for spring semester. We are continuing to facilitate open lines of communication with the nursing faculty and hope to touch base with them again Spring semester.</p> <p>June 2017: We plan to set up a meeting with OTA faculty for fall 2017 semester. We are continuing to facilitate open lines of communication with the nursing faculty and hope to touch base with them again, especially due to the high number of turnover within the ADN program faculty.</p> <p>January 2018: We plan to set up a meeting with OTA faculty for spring 2018 semester. We are continuing to facilitate open lines of communication with the nursing faculty (in particular, regarding sharing of a nursing/science student tutor).</p>					

Academic Program Improvement Plan

PROGRAM:		General Studies-Science 80600			
<p>Defined Outcome: Strive for consistency for C or better rates in health science courses (Chemistry, General Anatomy and Physiology, Advanced Anatomy and Physiology, Microbiology), and therefore WITC's score for the "WTCS Course Completion" indicator will increase to at least 80%.</p>	QRP Indicator #	Perkins Indicator #	Responsibility	Timeline	Resources
	CG07 (76.4% for 2014)	NA			
<p>Action Plan/Action Items:</p> <ol style="list-style-type: none"> 1. Continue to evaluate course C or better rates across all delivery modes for the core health science courses (Chemistry, General Anatomy and Physiology, Advanced Anatomy and Physiology, Microbiology). 2. Continue to conduct/implement common course assessments, and as part of the assessment process, identify areas where students do not score as well, modify instructional plans, and implement/evaluate these improvements each year, checking across delivery modes as monitored above. 			<p><u>Lead:</u> Dave Stanley, with Health Science Faculty and Dean</p>	<p>2015-16 & on through 2017-18</p>	<p>Academic Affairs and IE (Jennifer Kunselman & Trixie Felix)</p>

Update: (A mid-year and year-end update will be required each year during implementation.)

May 2016:

Shifting toward use of Blackboard instead of EdAssess. Please see top of this document.

December 2016:

Shifting toward use of Blackboard instead of EdAssess. Please see top of this document. The numbers from FY16 seem to reflect the following:

Chemistry – The C or better rates have shown some year-to-year swings. With low numbers in the IPV classes, and the lower pass-rates varying with the delivery mode, we'll continue to monitor this – delivery and successes by all modes - next year.

General A&P (GAP) – The most notable change here is the drop in online success with the course. The only notable change that could impact student success would be a new common textbook, and faculty are adjusting to this change. Here again we will want to monitor to see if there would be two years showing consistent evidence of a concern, or if this is simply a year-to-year change in the dynamics of the class of students we have. The GAP class (online) also had numerous students who started the class but stopped completing coursework partway through, which skewed the data with multiple “F” outliers (the students never withdrew from that online class due to financial aid implications or lack of incentive to drop).

Advanced A&P (AAP) - The AAP class (online) pass rate percentage seems inconsistent to us (based on our knowledge of how those classes “went”); this data seems inconsistent with our common assessment write up summary for this class for this academic year as well. (Perhaps the reason for this is linked with switching to the new common textbook and there was the possibility of students using both the old book AND the new book for this class during the transition period?) We would like to reevaluate this next year to see if the pass rate increases. Still, over the past three years, we have seen the C or better (or B- or better) rates for the class are 12%+ lower when the students take it online. We will continue to strive to get the “right” students to enroll in AAP online, and encourage students to take it in-class (FTF or blended) wherever possible. We have seen a shift toward fewer students taking the course online. We could monitor this (to see if we are being successful in shifting students to in-class sections), while continuing to work on refining strategies for teaching this course online – which is very difficult for many students.

All of the above are further compounded by the fact that we have difficulty locating qualified tutors for students in these classes. We will be trying to see if we can improved access to health science tutors across the district in the coming semesters.

June 2017: This report is run in August of each year. Shifting toward use of Blackboard instead of EdAssess. Please see top of this document. We continue to work toward finding student tutors for science classes and increasing student utilization of Student Success Center resources and tutors.

January 2018:

This report is run in August of each year. We are now using statistics features in Blackboard instead of EdAssess. We continue to work toward finding student tutors for science classes and increasing student utilization of Student Success Center resources and tutors. We are also looking into sharing a nursing/science student tutor. We also have seen that the C or better rates for HIT and some other programs are lower than that for students in the nursing program. We will use that into the future when working on the Advisory Committees of these programs to address opportunities for improvement.

Academic Program Improvement Plan

PROGRAM:	General Studies-Science 80600				
Defined Outcome: Develop common guidelines regarding use of science labs across the district.	QRP Indicator #	Perkins Indicator #	Responsibility	Timeline	Resources
	NA	NA			
Action Plan/Action Items:			<u>Lead:</u> Mary Goldsmith, with Health Science Faculty and Dean	Begin in May 2016, develop over summer, finalize Fall semester 2016	Deb Christopherson, other room schedulers on each campus (Lynn Lehman-Sup, Candy Webb-Ash, Jolene LeDuc-NR, Annette Krance- RL)
<ol style="list-style-type: none"> 1. Develop rules/protocols that are consistent district-wide for science labs. 2. Create protocol posters 3. Post protocol posters in each science lab 4. Communicate these rules/protocols to other departments that may use science labs (con ed, all deans, room schedulers on each campus, Deb Christopherson, etc.). 5. Incorporate room protocols in the “room info” available in 25-live room scheduling software. 					
<p>Update: (A mid-year and year-end update will be required each year during implementation.)</p> <p>May 2016: In January 2016, we developed guidelines, created posters, and posted them in all science labs.</p> <p>December 2016: Completed.</p> <p>June 2017: Completed.</p> <p>January 2018: Completed.</p>					

Concluding thoughts: In completing this program review, we found that we all communicate with the programs we serve regularly, as evidenced by the creation of our official form to document these encounters. Additionally, we have added “ongoing communications with programs served” as an item that is on the agenda for all of our Science Team meetings (both face to face and ITV). We feel this will ensure our connectedness with the programs we serve. This will also ensure open and continuous communication with new & future programs that (may)

have science classes (i.e. Veterinary Tech, Pharmacy Tech, Physical Therapy Assistant, etc.) right from the onset. We believe this will help us best meet the needs of each program and their students. Finally, as always, we will continuously monitor and try to improve C or better rates in the health science courses.

Academic Program Improvement Plan

Use in report: The reports from which these numbers are drawn, are run each **August** – and so the data will be updated in the December/January update reports only. For these data, “F” and “W” are included in the count of those attempting. R’s are not, as they are replacing a previous grade. Only the new grade would be reflected. Count for passing grades include C, and C+ to A, S, and P.

Math & Science - C or better rates across courses – online vs. the others				
Course	FY13	FY14	FY15	FY16
Chemistry	4% 3% (online)	8% 3% (online)	73% (web-enhanced) 37% (hybrid) 04% (hybrid; web-enhanced) 86% (online)	18% (web-enhanced) 89% (hybrid) 00% (hybrid/ITV) – too small? 74% (online) 41% - total
P	6% 9% (online)	3% 0% (online)	88% (web-enhanced) 81% (hybrid) 00% (both – not OL) 51% (online)	25% (web-enhanced) 61% (hybrid) 60% (online) 18% - total
P	4% 2% (online)	8% 4% (online)	25% (web-enhanced) 13 (hybrid) 00% (both – not OL) 74% (online)	62% (web-enhanced) 71% (hybrid) 81% (online) 22% - total
Micro	2% 9% (online)	0% 3% (online)	29 (web-enhanced) 14 (hybrid) 54% (both – not OL) 80 (online)	70% (web-enhanced) 78% (hybrid) 36% - total