Culinary Science

Bachelor of Science

Program Overview

Culinary Science combines the creativity of culinary arts and the science of food science into one fun and exciting program. The classes students take will give them experience in creating and analyzing foods as well as in hospitality management and food safety. Culinary Scientists work in the food industry, academia, government positions, and private consulting.

Students will take classes focusing on food quality assurance, food additives, food product development, and food processing by either transferring to Ohio State after completing an Associate's Degree in their chosen culinary field or concurrently taking classes at a culinary institution.

Career opportunities for graduates include:

- Product Development
- Caterer
- Kitchen Manager
- Restaurant/Personal Chef
- Artisanal Baker
- Vocational School Educator
- Ingredient Sales

Students may also be interested in the Food Science and Technology major or the Food Business Management major.

Program Learning Goals & Outcomes

Goal 1.0
Mastery of culinary skills with ability to run a small to medium facility

Outcome 1.1
Identify business concepts important for effective food business decision-making

Outcome 1.2
Apply business concepts important for effective food business decision-making

Goal 2.0
Competency in food processing and in the application of the principles of food processing

Outcome 2.1
Demonstrate knowledge of core competencies of food processing

Outcome 2.2
Apply principles of food processing

Goal 3.0
Identify, define and analyze technical problems and develop realistic solutions to those problems

Outcome 3.1
Effectively analyze technical problems

Outcome 3.2
Formulate effective answers to technical problems

Goal 4.0
Understand microbiology of Pathogenic, spoilage and beneficial microorganisms in food systems

Outcome 4.1
Identify pathogenic, spoilage and beneficial microorganisms in food systems

Outcome 4.2
Relate principles of food preservation and processing (including cleaning and sanitation) to the control of microorganisms

Goal 5.0
Communicate effectively in a variety of formats (i.e., oral and written communication, listening, interviewing, etc.)

Outcome 5.1
Show effective written communication skills

Outcome 5.2
Exhibit effective oral presentation skills

Outcome 5.3
Demonstrate effective team-based skills

Assessment Fundamentals

What is assessment?

While there are certainly many answers to this question, in the context of the CFAES academic community, assessment is the practice of evaluating the manner or degree to which students in academic programs in our College are learning.. Academic units and programs within CFAES have developed student learning outcomes, which are statements of the key indicators of student learning in specific programs. Assessment is designed to compare actual student performance to these predetermined student learning outcomes.

Assessment is used to respond to at least two concerns: 1) Are students learning what they are supposed to be learning? and 2) How can educators document that students are learning what they are supposed to be learning? While these two concerns are intertwined, they also fulfill separate functions. Concern one is primarily a question of academics: Are our teaching methods effective? Are our students learning what they should and as well as they should? What can we do to improve student learning? Concern one is aligned with continued improvement of teaching and learning. Concern two is aligned more with the issue of accountability. Education is increasingly being asked and even required to document that students know and can do what we say they can do and simple completion of course, program, and graduation requirements is not enough. Accountability requires that educators show that students can actually demonstrate what they know and can do and merely one grade on a test, a paper, or in a course is not sufficient. Accountability should flow naturally from the focus on teaching and learning.

Why do assessment?

Assessment needs to take place for at least two reasons:
1) Assessment is designed to function as continued improvement for teaching and learning.

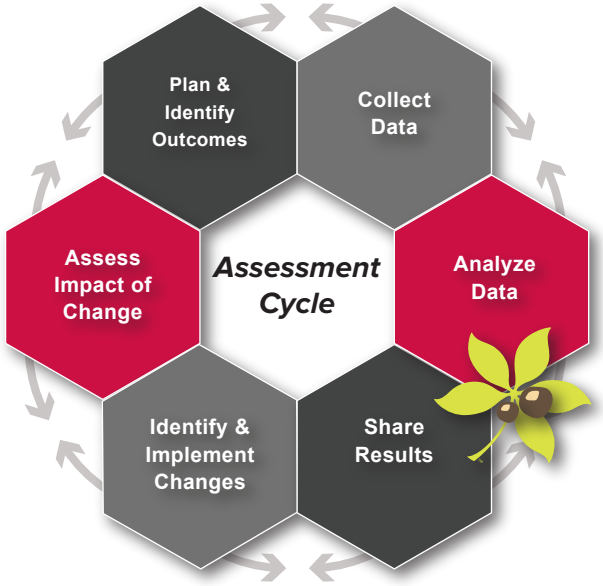
- Assessment helps educators improve the manner and degree to which students learn what they are supposed to be learning.
- Assessment provides information that allows educators to make good decisions based on quality information about student learning.
- Assessment encourages educators to look at what they do in the classroom, how their classroom practices affect student learning, and what changes could be made in teaching methods or materials to enhance student learning.

2) We need to do assessment to remain accountable to the publics we serve.

- Students and their families should be able to see what we do in teaching and learning, and what we expect of students;
- Accrediting agencies need to know that we are effective in our teaching and learning;
- Legislative and executive governmental bodies provide funding and need to know that these funds are accomplishing their intended purposes.

Assessment Cycle

The assessment cycle considers collection and review of data on an ongoing basis to formulate recommendations for incremental programmatic change. Accumulative findings for all program goals based on the contributing outcomes are used as the cornerstones for programmatic review. Assessment provides essential information for making strategic adjustments to the academic program, which assures continuous quality improvement with the intent of improving teaching and learning.



The language of assessment . . .

Goals: Student Learning Goals are stated in terms of achievement resulting from student learning. Goals provide a broad description identifying the foundations, concepts, theories, abstractions, principles, knowledge base, and/or skills, which are the products of what students are to be able to do, know, and care about upon the completion the program. Learning goals are frequently stated using the verbiage of: understand; appreciate; know about; become familiar with; learn about; or become aware of. Reoccurring learning goal concepts/themes for CFAES programs are Critical Thinking, Communications, Academic and Professional Integrity, Diversity, and Knowledge.

The stated learning goals of the programs within CFAES have the inferred prefix of, "***Students will . . .***"

Outcomes: Student Learning Outcomes (SLO's) {also commonly referred to as Expected Learning Outcomes (ELO's) or "objectives"} are statements indicating changes in knowledge, skills, behaviors, attitudes, or values relative to a desired goal as a result of a specific activity, such as completion or participation in a program, activity, course, or project. Cognitive learning outcomes can most effectively be stated using verbs aligned with one of the six domains of the Bloom's Taxonomy of Educational Objectives (Remembering, Understanding, Applying, Analyzing, Evaluating, or Creating). Appropriately structured outcomes serve as the supportive methods/means of measuring student attainment of the associated learning goal.

The stated expected learning outcomes of the programs within CFAES have the inferred prefix of, "***Students will have the ability to . . .***"

Assessment & Curriculum Connection

Assessment results are used in concurrence with the program curricular map to form the underpinning for informing curricular decisions and to further enhance student learning. Curricular mapping demonstrates the opportunities for students to be introduced to knowledge (beginning), opportunities for reinforcement of knowledge (intermediate), and opportunities for students to demonstrate mastery of knowledge (advanced) relative to the stated programmatic learning goals.

	Program Learning Goals B=Beginning, I=Intermediate, A=Advanced				
Courses	Mastery of culinary skills with ability to run a small to medium facility	Competency in food processing and in the application of the principles of food processing	Identify, define and analyze technical problems and develop realistic solutions to those problems	Understand microbiology of Pathogenic, spoilage and beneficial microorganisms in food systems	Communicate effectively in a variety of formats (i.e., oral and written communication, listening, interviewing, etc.)
FDSCTE 2400 *Introduction to Food Science*		***I*** 2.1 Demonstrate knowledge of core competencies of food processing 2.2 Apply principles of food processing		***B,I*** 4.1 Identify pathogenic, spoilage and beneficial microorganisms in food systems 4.2 Relate principles of food preservation and processing (including cleaning and sanitation) to the control of microorganisms	
FDSCTE 4536 *Food Safety and Public Health*				***B*** 4.1 Identify pathogenic, spoilage and beneficial microorganisms in food systems	
FDSCTE 5310 *Food Quality Assurance*	***B,I*** 1.1 Identify business concepts important for effective food business decision-making 1.2 Apply business concepts important for effective food business decision-making			***B,I*** 4.1 Identify pathogenic, spoilage and beneficial microorganisms in food systems 4.2 Relate principles of food preservation and processing (including cleaning and sanitation) to the control of microorganisms	
FDSCTE 5330 *Food Plan Management*	***B,I*** 1.1 Identify business concepts important for effective food business decision-making 1.2 Apply business concepts important for effective food business decision-making				
FDSCTE 5410 *Fruit and Vegetable Processing*		***I*** 2.1 Demonstrate knowledge of core competencies of food processing 2.2 Apply principles of food processing		***I*** 4.2 Relate principles of food preservation and processing (including cleaning and sanitation) to the control of microorganisms	
FDSCTE 5420 *Dairy Processing*		***I*** 2.1 Demonstrate knowledge of core competencies of food processing 2.2 Apply principles of food processing		***I*** 4.2 Relate principles of food preservation and processing (including cleaning and sanitation) to the control of microorganisms	

Assessment & Curriculum Connection Continued on Back . . .

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FDSCTE 5430 *Food Fermentation*		***I*** 2.1 Demonstrate knowledge of core competencies of food processing 2.2 Apply principles of food processing		***I*** 4.2 Relate principles of food preservation and processing (including cleaning and sanitation) to the control of microorganisms	
FDSCTE 5720 *Industry Internship Food Product Development*			***I,A*** 3.1 Effectively analyze technical problems 3.2 Formulate effective answers to technical problems		***I*** 5.1 **Show** effective written communication skills 5.2 Exhibit effective oral presentation skills 5.3 Demonstrate effective team-based skills
FDSCTE 5730 *Technical Problem Solving*			***I,A*** 3.1 Effectively analyze technical problems 3.2 Formulate effective answers to technical problems		***I*** 5.1 **Show** effective written communication skills 5.2 Exhibit effective oral presentation skills 5.3 Demonstrate effective team-based skills

Assessment Methods

Achievement of program learning goals are assessed systematically utilizing the identified means for the aligned learning outcomes via direct and indirect measures that serve as authentic assessment methods.

Direct

Direct assessment methods are means of assessment that measure students' performance directly, are authentic, and minimize mitigating or intervening factors. In general, direct assessment methods are assessment tools that measure student learning by having students create or perform directly based on their learning. Direct methods are the direct evaluation of aggregate student achievement on specific learning outcomes.

Indirect

Indirect assessment methods are means of assessment that are steps removed from direct methods and are based upon perception of student learning from various constituents. In general indirect assessment methods infer whether learning has taken place by asking for perception of learning, typically from students, but also from those with whom they have worked. Indirect methods are tools that enable us to infer actual student achievement, very often from student self-reports of their perception of their learning.

Within then Culinary Science program's assessment plan, the following methods have been identified as means of assessing student attainment of state learning outcomes:

Direct
Embedded Testing Student work in designated courses is collected and assessed in relation to the program learning outcomes, not just for the course grade. The assessment may be conducted at specific points in a program and the products of student work need to be considered in light of the multiple dimensions of the learning outcomes.
Writing Assignment Written display of comprehension of course topic(s). This can be done through a research report, essay, journal entry, creative writing piece, or another suitable writing method.
Capstone Course A method of summative evaluation. Student is given an opportunity to demonstrate integrated knowledge and growth in the major. May assess a student's cognitive, affective, and psychomotor learning in the major and also the overall collegiate learning experience.
Group Project Assesses learning and performance in a group setting with evaluation on the group and/or individual process and end product. This tool can result in a group presentation, paper, demonstration, or developed project.

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Scaffolding to Support Learning Outcomes Assessment

The primary purpose of program learning outcomes assessment is to assure that all students have the opportunity to learn what is truly valued by the program. It is not enough to simply collect data for the programmatic learning outcome assessment; these data must be used to reflect and examine whether learning expectations are being obtained and when weaknesses are discovered, needed changes are determined. Educators must remember that the foremost purpose of learning outcomes assessment is for programs to continually be improving the quality of the teaching and learning experiences that enable significant learning.

To assure that all students have the opportunity to learn what is truly valued by the program, the program must engage all faculty and instructional staff at some level of the assessment process. To be successful a program must also have leadership and a supportive scaffolding structure in place to facilitate its assessment efforts.

Overview

The 2012 *Culinary Science - BS* program assessment plan was crafted under the leadership of the unit assessment contact(s) for Culinary Science located on the Ohio State Columbus campus. The CFAES Office for Teaching, Learning, and Assessment coached the program's learning outcomes assessment plan development team through the process by: 1) Elucidating program learning goals and developing measurable contributing outcomes; 2) Identifying the means and methods by which the embedded assessment of learning outcomes will be achieved; 3) Defining programmatic criteria for student achievement of each identified outcome; and 4) Planning for the use and implementation in the process of generating the comprehensive program learning outcomes assessment plan.

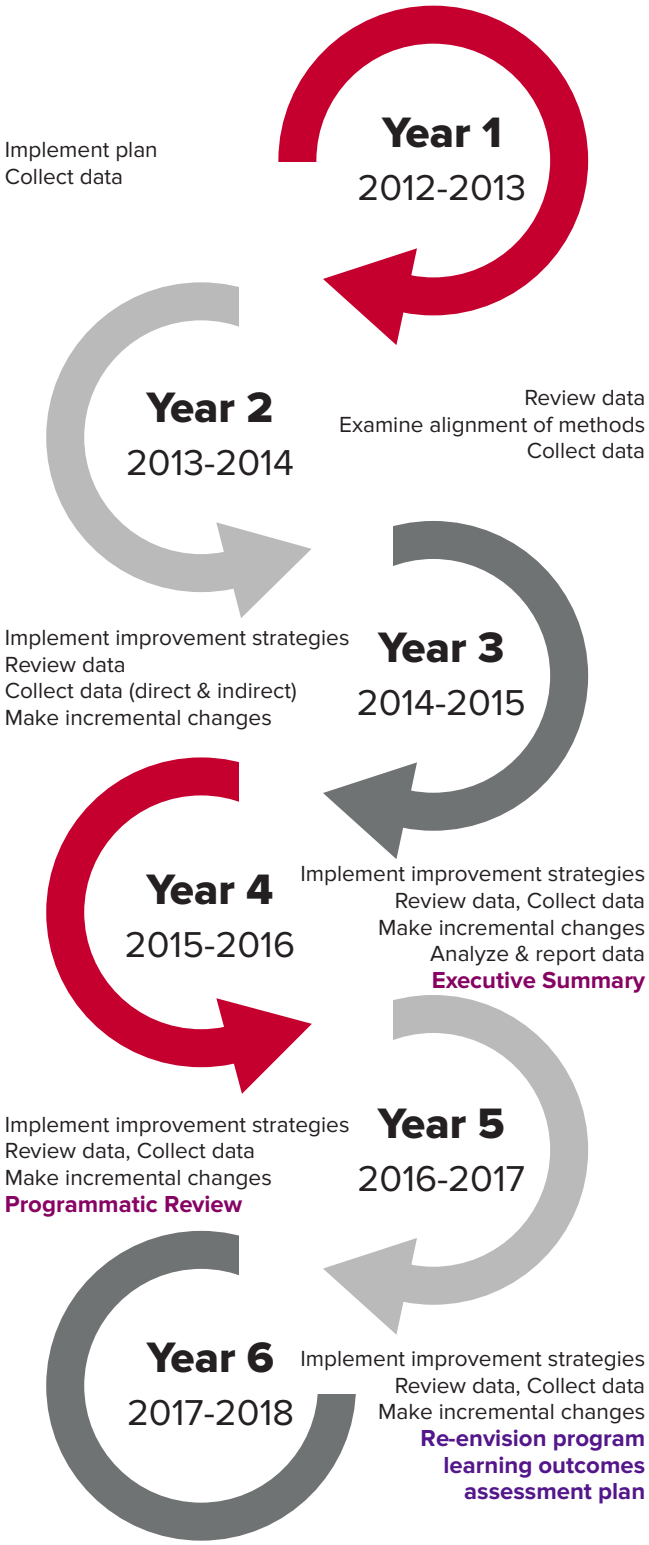
Commitment

Development, implementation, documentation and reporting associated with the *2012 Culinary Science - BS program learning outcomes assessment plan* are coordinated through academic unit's assessment contact(s) with adherence oversight and support provided by the CFAES Office for Teaching, Learning, and Assessment. Data collection is a collaborative endeavor between the unit's assessment contact(s), course instructors and academic advisors, and students. The assessment contact(s) partners with the CFAES Office for Teaching, Learning, and Assessment to collect, report, and review results on the basis of the Ohio State's annual assessment reporting cycle. The assessment contact(s), Culinary Science program, the Food Science and Technology Divsion, and course instructors are to review the program, its supporting coursework, and the related assessment results annually, on an ongoing basis, to formulate recommendations for incremental programmatic change to the unit's Academic Affairs Committee. With the goal of improving learning, instruction, and curriculum, indicators from a summary report of the findings are to be used to plan the incorporation of needed modifications. Accumulative findings for all program goals based on the contributing outcomes will be used as the cornerstone in the programmatic review cycle, providing essential information for making strategic adjustments to this academic program, assuring continuous quality improvement.

Continued Assessment Methods Table . . .

Indirect
Survey (Employer) Surveying of student internship and/or alumni student employers provides insights regarding students' workforce preparedness, professionalism, work ethic, and being cooperative team members. Can be accomplished through mail and/or telephone surveys, focus groups, and interviews.
Survey (Alumni) Surveying of program/college alumni allows insight into the perspective that students have on their education after time away from school. Allows for external look at strengths/weaknesses of a program. Can be accomplished through mail and/or telephone surveys, focus groups, and interviews.
Survey (Student) Surveying of student provides insights into their personal view of their own workforce preparedness, professionalism, work ethic, team contribution, and comprehension of topics/materials covered. Can be accomplished through mail and/or telephone surveys, focus groups, and interviews.
Other Indirect Measure Other course assignments/ experiences serve as assessment methods for appraising students' ability to collect and apply accurate information to make sound decisions and solve problems. Examples include a research forum presentation, annual report or a report from a certification agency.

Implementation – Six-Year Schedule



The data collection for the identified direct methods of the supporting learning outcomes is conducted annually (or each semester the affiliated course(s) or activities are conducted) starting Au2012. In adherence to the CFAES Academic Program Assessment Plan Revision Cycle (presented and adopted at the December 01, 2011 meeting of the CFAES Committee on Academic Affairs) this program will go through a comprehensive outcomes assessment review every six years.

During the first year of implementation of a new (or re-envisioned) program assessment plan, focused attention will be given to refining the measures used for assessing achievement to assure alignment of identified assignments with outcomes. During the initial year of the plan, the program will collect and report supporting data for half of the documented learning goals.

In year two, focused efforts will explore and reexamine alignment of methods with specific program learning outcomes along with data collection and reporting on the remainder of the program learning goals (those not addressed previously).

During the third year, in addition to collecting and reporting data for all program learning goals, the program will explore conducting faculty facilitated student, alumni, and/or stakeholder focus groups and/or surveys to aid in assessing success of learning outcomes.

For year four of the cycle, supporting data will continue to be collected and reported for all program learning goals. Upon conclusion of the academic year, the academic unit, with the assistance of the CFAES Office for Teaching, Learning, and Assessment, will craft and submit to the College's Academic Affairs Committee. An executive summary of findings for the programs based on the four years of Program Assessment Plan data collected.

In the fifth year of the cycle the program will continue collecting and reporting data for all program learning goals and the program coordinator will review the stated set of program learning goals to determine if modifications should be made in the forthcoming rendition of the program assessment plan.

During year six, data collection and reporting for all program learning goals will continue. In addition, the unit, upon notification from the CFAES Office for Teaching, Learning, and Assessment will work with the academic unit's assessment contact(s) to assemble and convene a formal programmatic assessment review team, comprised of faculty, staff, students, alumni, and stakeholders, to do the following program evaluation: 1) Review the accumulated findings from the assessment review cycle; 2) Appraise the achievement and success of the program; 3) Examine alignment of program learning goals and outcomes; and 4) Produce a summary of recommendations for program modifications and enhancement. The efforts of the team's comprehensive review of the individual Program Assessment Plan in "year six" will produce a "re-envisioned" plan.

Assessment Findings

Reporting Synopsis

Data from identified methods (measures) were collected and reported as evidence of achievement of program learning goals via supporting outcomes (objectives) for the 2012-2016 assessment reporting cycles. Collectively in periodic meetings (review colloquy) the CFAES Office for Teaching, Learning, and Assessment and the assessment contact for the Culinary Science program elaborated upon the process by which the program was going to review and use evidence (findings/results). They also discussed the procedure which was going to be followed for taking future actions and examined the approach for future planning for the program. One of the primary topics of discussion at these meetings was exploring how the information gathered about student learning was to be shared with the division's faculty, instructional staff, and leadership, and how to use it for improvement of learning outcomes.

This document, the *Assessment Excutive Summary* which is a collaborative report compiled from the information submitted by the academic unit's assessment contact(s) to the Office for Teaching, Learning, and Assessment, is to serve as a mechanism for sharing the status of the program's assessment activities and results with the program faculty and instructional staff, unit and college leadership, stakeholders, the unit's Committee on Academic Affairs, the college's Assessment Committee and CFAES Committee on Academic Affairs.

This summary covers 19 of the 42 identified methods for the 11 supporting outcomes of the 5 program learning goals of this program learning outcomes assessment plan were reviewed during the 2012-2016 assessment reporting cycle.

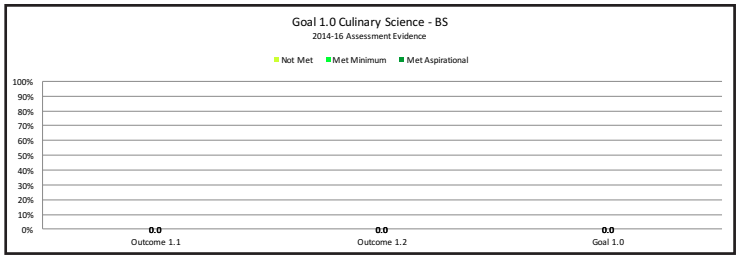
Use of Assessment Findings

Use and Actions Taken

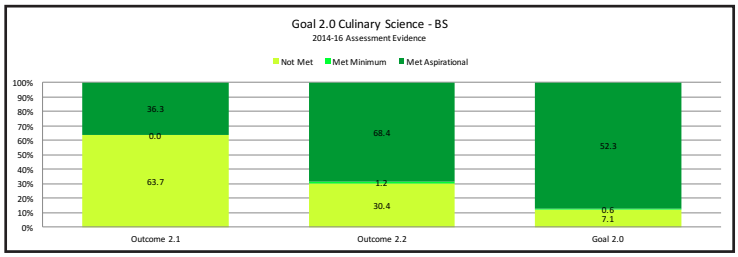
Any changes and/or modifications to this program and/or its learning outcomes assessment plan resulting from these assessment results were explored while reflecting upon collected and reported assessment data during the annual Autumn semester review colloquy. Resulting desired adjustments were then enacted during the following assessment reporting cycle.

The program's coordinator, assessment contact, the CFAES Office for Teaching, Learning, and Assessment, and other faculty and instructional staff has examined the program, its supporting course work, and the related assessment findings on an ongoing basis to formulate recommendations for incremental change. Areas for which assessment data has and will be used include:

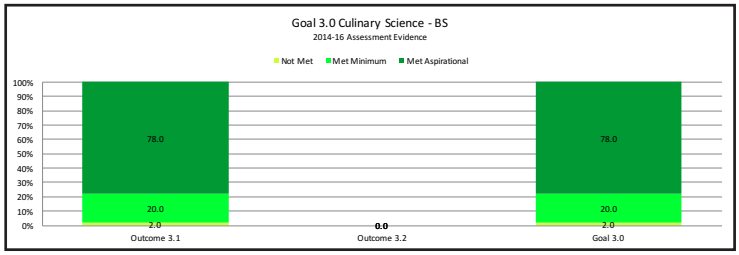
- Analyzing and discussing trends with the unit's faculty
- Analyzing and reporting to college/school
- Making improvements in curricular requirements
- Making improvements in course content
- Making improvements in course delivery and learning activities within courses
- Making improvements in learning facilities, laboratories, and/or equipment
- Periodically confirming that current curriculum and courses are facilitating student attainment of program goals



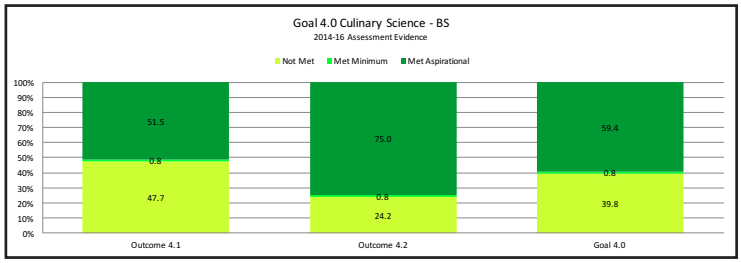
Learning Goal 1.0 has two identified unique contributing/supporting *Learning Outcomes* for which attainment is appraised via the use of six asessment methods (student n = 0 for reported assessment methods data)



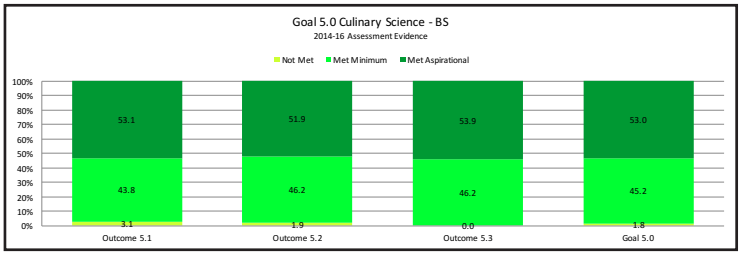
Learning Goal 2.0 has two discerned contributing/supporting *Learning Outcomes* for which student achievement is guaged by the use of thirteen assessment methods (student n = 4 for reported assessment methods data)



Learning Goal 3.0 has two defined contributing/supporting *Learning Outcomes* for which student performance is assessed by using four assessment methods (student n = 0 for reported assessment methods data)



Learning Goal 4.0 has two established contributing/supporting *Learning Outcomes* for which student accomplishement is rated by using twelve assessment measures (student n = 47 for reported assessment methods data)



Learning Goal 5.0 has three established contributing/supporting *Learning Outcomes* for which student accomplishement is rated by using seventeen assessment measures (student n = 18 for reported assessment methods data)