

**Board Core End Report- Educational and Support Process Management
Baldrige Category #6
March 2005**

This category examines the college's management of key learning-centered processes for HCC's educational programs, offerings, and services that create student, stakeholder, and organizational value. It also examines the related support processes.

There are currently two education excellence criteria for this Baldrige category (a national panel examines the criteria after each competition and some moderate additions/deletions can occur).

Criteria 6.1 Learning-Centered Processes (For FY05 will be reduced by 5 points to 45 points)

How does HCC identify and manage its key processes for creating student and stakeholder value and maximizing student learning and success?

The key learning-centered process begins with the strategic and general education goals of the institution i.e., what do we want our students to know, be able to do, and demonstrate. The learning-centered process consists of design, implementation, and evaluation of key HCC offerings, including transfer and career courses and programs, certificate courses and programs, and non-credit courses and workshops. Areas of focus for new course and program design are identified through community research, participation on regional and local economic development councils, employer requests, faculty/staff involvement in local, regional, national, and international groups, and student inquiries. HCC also has a research and development team that routinely engages in environmental scanning to explore new course and program ideas.

Course and program design begin at the faculty level, extend out to the division level, then move to the curriculum and instruction committee and to the vice president of academic affairs (VPAA). This evolution insures faculty input at each level while allowing for a broad overview of how each course or program fits into the institution's strategic plan and general education goals. The effectiveness of courses and programs is measured via the host division and employs, on a rotating basis, a formal learning outcomes assessment (LOA) process. The LOA is consistent across the institution, and all divisions, programs, and courses are included on alternating three-year cycles. The LOA coordinator, a part of the institutional research team, oversees this process and ensures that each assessment project meets best practice standards for institutional assessment as outlined in the LOA Handbook (see: <http://www.howardcc.edu/loa/>) Results of each project are reviewed by faculty, division chairs, and the VPAA; improvement strategies are developed and implemented; and results from these strategies are evaluated again as part of the standard three-year assessment cycle. Course and program assessment are linked to strategic and general education goals across divisions and across the college.

Education design and delivery for continuing education and workforce development run parallel to credit course and program design, with the same emphasis on identifying focus areas, involving faculty in course development, and linking outcomes to HCC strategic goals. Assessment of learning outcomes in these courses centers on student success and retention rates, the extent to which students are able to utilize course-based skills and knowledge (e.g., personal fulfillment, job training, career growth), and end-of-course evaluation forms. The key performance requirements vary according to the specific course and course and program assessments are designed to accommodate these variations. The delivery process depends on the target audience and can include traditional classroom, distance learning, a combination of distance. There is increased emphasis on linking non-credit and credit courses and programs to facilitate student status change and transfer into degree-based programs. Custom classes illustrate this emphasis.

Online and distance learning is another area of particular focus for evaluation. Recent interventions to maximize student performance and learning in this area include increasing student-instructor interactions, offering periodic, real-time or on-campus sessions to complement the online curriculum, and assessing student success as it relates to their degree of computer literacy. Each intervention is being assessed after implementation to evaluate the item's contribution to increased learning, student success, and student satisfaction.

Professional development seminars are offered each semester to refresh teaching and learning practices and to supply faculty and staff with the most current research in the field on teaching and learning initiatives and student support. Training is offered through the VPAA area, the LOA office, and the Teaching and Learning Institute (TLI). Institutional research and outcomes assessment instruments collect information about student learning styles and preferred curriculum delivery methods. The end of semester course evaluation (IDEA survey) collects similar data and matches student preferences to faculty teaching methods and emphasis. Data from each of these instruments are forwarded to division chairs and faculty and incorporated into the design of faculty teaching improvement projects and LOA projects. Course offerings and delivery methods are routinely redesigned based on the data from these evaluations in order to best accommodate student learning styles and preferred delivery methods.

HCC's expanded emphasis on formalizing linkages and connections among programs and across disciplines has required an increased commitment to assessment and evaluations at all levels in the teaching-learning process. In addition to the yearly cycle of course assessment projects, teaching improvement projects and promotion projects, a five-year assessment matrix is under development that will outline learning outcomes assessment goals for each HCC program and link HCC strategic and general education to these goals. Multiple assessment methods will continue to be employed in these projects and outcomes are assessed at both the summative and the formative levels. Summative assessment data are collected at specific points in a course (end of semester project exams, end of semester evaluations, etc) and formative assessment is

collected on an ongoing basis (throughout the course, over time, across varying sections of a multi-task project) to ensure that outcomes are evaluated at key points in a course and over time as students are learning. External benchmarks and national norms are also used in these assessments to provide a basis for comparison with peer institutions beyond the confines of the campus population. (See **External Measures** section).

The key education support processes for student success are based on identifying student needs, developing the programs to support the needs and then measuring the effectiveness of the actions taken. Input is gathered from a number of methods including the YESS survey, analysis of recruitment and retention data, comment cards, and direct input from focus groups with key stakeholders (reported as part of Category # 3). Employees are also asked via the QUEST if they have the institutional support they need to provide quality service to HCC students (see Internal Measures section). Efforts are underway this year to expand the college's LOA program to more fully participate in outcomes assessment of the student services area. This initiative involves training for student services staff on developing, measuring, and implementing clearly defined goals, outcomes, and evaluation methods for student services on campus, and a close partnership and support with LOA staff.

The key student services in continuing education (Con Ed) include registration, limited counseling, financial assistance, awarding of Continuing Education Units (CEU's) and certificates, and customized training. Collegewide surveys specifically target students enrolled in Con Ed courses and collect annual data to track these students' satisfaction with services they receive. Periodic and formal student services evaluation forms are also completed by faculty in the Con Ed division to evaluate the student services with which they have direct contact and interaction, either on their own or through their students' experiences. An operations unit supports daily operations and individual unit assistants provide greater support for students and faculty. Regular general staff meetings and monthly managers meetings identify issues and provide solutions. Faculty provide input through meetings with the appropriate coordinators or on evaluation forms. Data collection will be expanded and formalized this year through the new emphasis on linking outcomes assessment across programs, divisions, and the institution. Improved systems for cross-unit data sharing will be implemented as part of this plan. These systems will include formal data sharing presentations, web page postings of data, and increased opportunities for informal information sharing.

A number of programs and services are offered to enrolled students that help retain students and give them tools for success. The college's first year experience team is examining the impact of academic and student support services on first year success and retention. The vocational support services team program is designed for students in vocational/career programs who are having academic difficulties or who have disabilities. The learning assistance center (LAC) provides tutoring and academic support services to an average of 700 students a week. Financial aid services offer a number of activities aimed at increasing student awareness of financial aid. Several

departments and programs regularly assess student use of these services such as their success in individual courses, particularly at the developmental level.

Partnerships with the Howard County Public School System (HCPSS) have served to support a number of initiatives that are geared to the recruitment and retention of students. For example, the Silas Craft Collegians program is geared to providing a supportive learning community for students identified at the high schools as “at risk” students. The James W. Rouse Scholars program is a selective, challenging honors and leadership program designed for transfer to distinguished four-year colleges and universities at the end of the sophomore year. Project Access is a bridge program for physically and/or emotionally disabled high school students who participate in a summer program aimed at preparing students for a college experience. Concurrent enrollment for senior high school students enables seniors to attend high school and earn college credit. Each spring, the Freshman Focus program prepares graduating high school seniors who are entering HCC in the fall. The entire college registration process, including placement testing, advising, registration, and financial aid, is completed prior to high school graduation. Currently, each of these programs collects and evaluates its own assessment data, but the college’s new strategic emphasis on institution-wide outcomes will incorporate more formalized assessment of these programs.

A number of process improvement teams have examined key support functions over the years to improve services to students based on results of the YESS and QUEST surveys. Changes in technological support may also force a review of departments’ processes. There is an Enrollment Management cross-functional team, including a retention subcommittee. Departments and committees do periodic review of the impact of changes to processes on improved service for students. Comment cards, which can now be sent electronically, result in immediate review for service improvements. Various stakeholders have a chance to notify departments of problems or give kudos when good performance has occurred. One of the key methods for improvement is based on departmental review of core work. Core work is tied into individual performance review and merit-based pay. Reviews occur at mid-year and at the end of the year. The core work process is a key part of the college’s initiative to formalize evaluations of outcomes at all levels of the institution. Included at the end of this report are: (1) Learning Outcomes Assessment Projects 04-05, (2) Program Review Projects 04-05, (3) LOA project table matched to general education competencies and assessment measures (new feature as the college prepares for the next accreditation cycle), (4) LOA assessment results 03-04, (5) Examples of LOA improvement strategies implemented 03-04, (6) LOA program review example (Computer Systems), (7) LOA external benchmarking example (BIOL 203/204).

Criteria 6.2 Support Services (for FY05 will be increased by 5 points to 40 points)

How does HCC manage its key processes that support its learning-centered processes?

HCC has an extensive community partnership and transfer network and is continuously working to evaluate and improve its impact on students and constituencies. The majority of all academic programs include in their outcomes assessment plans, transfer

rates and student success rates post-graduation. This occurs both for those programs specifically designed as transfer programs as well as for those programs in which graduates will be immediately employable in the field. For transfer programs, data are collected through state student data bases on transfer and retention at Maryland state institutions. Departments and programs maintain their own formal or anecdotal data on the number of their students who go on to four-year programs or professional schools. Career programs track graduate success in the field and survey employers for satisfaction levels and skill satisfaction. Currently, there are a number of outcomes assessment projects that contain as a benchmark or outcome some evaluation of student success after college, whether as a transfer student into a four-year program or as an employee in a career-based business. Evaluation methods include four-year program faculty evaluation of student preparedness, employer satisfaction with student skills and knowledge, success and retention rates, and graduate feedback.

Howard Community College builds partnerships with transfer institutions to ensure that students will have a seamless transition when they leave the college. For example, each year, two transfer fairs attract all of the Maryland four-year institutions and a number of out-of-state universities. Feedback from participants at the fair results in improvements in future fairs. Transfer advisors provide up-to-date admissions information for students so they have the correct courses for transfer and know of financial aid opportunities. The novel partnership between HCC and Prince George's Community College at a site in Laurel, MD with Towson University will allow students to complete their first two years at one of the community colleges and transfer into Towson University's bachelor degree programs. Surveys of the students at the Laurel College Center provide all of the partners with the information needed to change services and offer programs.

The college also builds partnerships with local businesses to develop internships and generate financial aid scholarships for students. Job fairs are held twice a year. Over 85 employers and 700 students and community members attend each job fair to discuss available jobs in Howard County. Evaluations are collected at the end of the fair and follow-up calls to employers track the number of students actually hired. The college also partners through a grant with the Howard County Public School System to develop vocational education programs for high school students interested in career programs. Evaluation of these efforts is part of the grant requirements. In response to local workforce needs, HCC also partners with various governmental agencies (e.g., Howard County Police and Fire Companies) and medical facilities to design and offer specialized programs such as emergency medical services.





HCC's strategic plan stresses the importance of partnerships and support processes to student success and achievement, and each college unit conducts ongoing assessment and evaluation of services and systems. With the colleges renewed emphasis on institution-wide assessment and evaluation linkages, all HCC units (academic and non-academic) will be asked, on a staggered plan, to identify connections between unit level goals and core work and HCC institutional objectives.








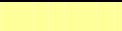




These activities (6.1, 6.2) will ensure that HCC will be able to demonstrate compliance with the recently released student learning assessment guidelines from the Middle States Commission on Higher Education.







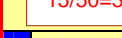





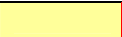
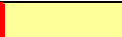
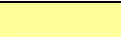
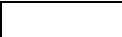
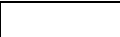





External Measures

The college prepared and submitted applications to various Baldrige based quality awards competitions; the results are indicated below. More details on the scoring system can be found at:

http://www.quality.nist.gov/PDF_files/2005_Education_Criteria.pdf ; booklet pages 54, 55.

Maryland State Quality Award		CQIN Pacesetter	
	Range of total applicant scores		HCC's Score - 2002
	2002 - Score interval in which HCC was rated		Specific score is issued.
	2003- Score interval in which HCC was rated		

		Scoring Ranges					
		0-9	10-29	30-49	50-69	70-89	90-100
Baldrige Criteria 1000 points	Overall Score						
		229/1000=22.9%					
							

			0-9	10-29	30-49	50-69	70-89	90-100	
6:	Educational And Support Process Management (85 points)	<i>New in 03</i>	6.1						
		6.1 (was 6.1,6.2) 50 points(*)	6.2						
		15/50=30%							
		<i>New in 03:</i>	6.3						
		(was 6.3 and is now) 35 points(*)	4.5						
4.5/15=30%									

(*) changing again for FY05: 6.1 will be 45 points, 6.2 will be 40 points.

Action:

The college receives a detailed feedback report delineating strengths and weaknesses in the category. A team reviews those reports, collects information on the process improvements that occur in the intervening months, and submits a new application.

On August 29, 2003, the college submitted another application to the Maryland State Quality Award. These results arrived in March 2004, and are included on the chart. The college formed a new team to develop the application for the Baldrige Award that will be submitted this May.

Benchmark:

Presently, institutions receiving a total score of 450 and up receive at least site visits. Therefore, the administration recommends a category benchmark aligned with that: **The college will receive a rating for category # 6 of 45 points.**

Next are two measures **mandated by the Maryland Higher Education Commission (MHEC)**. Note Peer Colleges: College of Southern Maryland, Harford Community College, and Frederick Community College. A national average is available for some of these measures.

Percentage of graduates who on their first try passed licensing and certification examinations in each academic field offered for which such tests are conducted and mandatory for employment in the field.

	FY 2000	FY 2001	FY 2002	FY 2003	FY2004	Benchmark FY 2005
Licensure exams passing rate						
NCLEX RN	98%	79%	90%	98% (n=48/49)	94% n=49/52	93%
			Peer AVG:	89%	88%	
			State AVG:	90%	88%	
			Nat'l AVG:	87%	87%	
NCLEX PN	82%	77%	92%	100% (n=16/16)	100% n=24/24	89%
			Peer AVG:	100%	100%	
			State AVG:	99%	97%	
			Nat'l AVG:	87%	89%	

The measures that follow are new and their benchmarks are still under consideration.

Percentage of graduates who on their first try passed licensing and certification examinations in each academic field offered for which such tests are conducted.

	FY 2003	FY2004	Benchmark FY 2005
Emergency Medical Technician (EMT-B)			
Written	97% n=30/31	95% n=20/21	
Practical	81% n=25/31	76% n=16/21	
State AVG:	n/a	80-89%**	
Paramedic			
Written	43% (n=3/7)	0%* n=0/2	
Practical	57% (n=4/7)		
State AVG:	69%	58%	
Nat'l AVG..		64%	

*Paramedic students have a year to compete the exam. Currently (FY04), neither HCC student has successfully completed the exam. **only available data.

The college has voluntarily begun to track additional licensure exam pass rates for cardiovascular technology and certified nursing assistant completers.

<i>Percentage of graduates who on their first try passed licensing and certification examinations in each academic field offered for which such tests are conducted.</i>			
	FY 2003	FY2004	Benchmark FY 2005
Cardiovascular Technology (CVT) Not required for employment at this time. Nationwide, only 35% of graduates take the test.	100% n=2/2	100% n=2/2	90%
Nat'l AVG:	n/a	n/a	

<i>Percentage of graduates who on their first try passed licensing and certification examinations in each academic field offered for which such tests are conducted.</i>					
			FY2003	FY2004	Benchmark FY 2005
Geriatric Nursing Assistant (GNA)					
Written			99% n=142/143	99% n=78/79	
	State AVG:		95%	n/a	
Skills			63% n=11/176	66% n=68/103	
	State AVG:		56%	n/a	

Learning Outcomes Assessment Projects 2004-2005

Year	Course	Faculty	Project Summary
1	ARTT 141	Jan Starr	Extent to which students acquire skills to succeed in subsequent courses in the program and/or to achieve their professional goals.
1	ENGL 122	Patricia Van Amburg	Student success in subsequent writing intensive courses after completing this writing intensive literature core course.
1	ENGL 085	Jean Svacina	Look at improved oral competency skills, impact of demographic variables on student performance, and success of new curriculum pilot project.
1	CMSY 110	Judy Law	Student success on comprehensive project or test to measure skills acquired during the semester.
1	BMGT 100	Beckie Mihelcic	Comparison of student success across sections on course-wide exam. Student success in course. Change in student perception of business as a major or field.
1	EMSP 101	Angel Burba	Student success in acquiring and applying skills used by an EMT-B. Student success on certification exams. Comparison of curriculum to DOT/NHTSA/HRSA standard curriculum.
1	ENES 100	Scott Foerster	Student success on course-relevant sections of national licensing exam. Student success in course.
1	PHYS 110	Russ Poch	Explore student background in math and science and attitude/expectations toward science. Measure student performance on nationally-normed exam.
1	GEOG 101	Judith Whalen	Study student learning patterns on individual course units to identify areas of strength and weakness in curriculum.
1	Math 131	Gabriel Ayine	Student success in Math 131 based on path into course (placement or Math 070).
1	Math 140	Brian Gray	Comparison of alternative method of instruction with traditional method.
2	ARTT 109	Jim Adkins	Looks at how well this prerequisite course prepares students for subsequent courses in the major and the extent to which learning objectives for the course are being met.
2	EDUC 111	Kathleen Kenney	Examines the extent to which teaching style matches learning styles of students in the course and what supports would help students to succeed in the course.

2	Mexico Study Abroad	Cheryl Berman	Examines the impact of study abroad experience on student learning and personal/professional development.
2	MATH 064 and MATH 067	John Esenwa	Compares student performance and success in computer and teacher-led and teacher directed classes.
2	MATH 131	Gabriel Aiyne	Looks at student success in this course based on path into the class (course sequence, placement) from Math 070.
2	PHYS 106	Sharon Lyon	Asks to what extent this course prepares elementary level teacher candidates for state certification requirements, and looks at student success and improvement in reading comprehension and math skills.
2	PHYS 203 and 204	Patti Turner	Asks whether curriculum and course materials match professional certification exam requirements and looks at student success in subsequent courses.
2	Spanish	Robin Bauer	Explores the question of whether service learning motivates students to continue to study and learn Spanish.
2	MUSIC 210, 211	Deborah Kent and Ben Myers	Administers pre- and post-test evaluations to determine student proficiency on entering and completing the course in the context of the music sequence overall.
2	PSYC 202	Jim Bell	Looks at student success in course in relationship to overall success in program and institution, with an emphasis on critical thinking skills.
3	ASTR 104	Larry Brown	Looks at how well students do in the course based on their entering math skills and background and examines the difference in in on-line and lecture sections.
3	ELEC 140	Dave Rader	Examines the extent to which students who complete the course are able to pass the industry certification exam and whether the curriculum adequately prepares students.
3	ENGL 093	Sue Frankel and Lucy Hunter	Looks at what level students enter the course and at what level they leave and the ways in which student background influences success in the course.
3	ENGL 106	Sandy Mallare	Explores the success and retention rates in this course, the factors that impact success and retention in this course, and success rates for students in this course while taking English 096 and/or 097.

3	Fine Arts	Valerie Lash	Looks at the pre and post change in student self perception upon completing fine arts courses, compares this change by creating and survey courses, and matches performance against project targets.
3	ITAL 101	Joseph Falvo	Examines student performance on a nationally-normed oral proficiency exam and attempts to identify the reasons students do not continue on for the second year Italian language sequence.
3	MATH 127	Jenny Penniman	Compares student success in Math 127 with pass rates on PRAXIS exams and asks whether completion of 128 after 127 improves exam pass rates.
3	Music 110,111	Deborah Kent and Ben Myers	Administers pre- and post-test evaluations to determine student proficiency on entering and completing the course and looks at possibility of NSM accreditation.
3	Nursing	Laura Sessions and Jennifer Stanford	Compares student performance on national nursing diagnostic exams and looks to develop interventions to support student learning and achievement.
3	Nursing	Donna Musselman and Pat Sipe	Compares student performance on national nursing diagnostic exams, with particular attention to the psychiatric nursing component, to predict success and identify at-risk students in the Nursing program.
3	PSYC 203	Peggy Armitage	Looks at student change in attitude toward mental illness between the start of the course and the end. Examines which areas in which students achieve more gain and which areas may need more emphasis in class.
3	POLI 101	Michael Heffren	Measures student knowledge of American politics at the beginning of the course and upon completion, looks at pre/post knowledge of and interest in current political events, and attempts to achieve consistency in curriculum and evaluation across the sections.
3	Math 070	Guy Bunyard and Brian Gray	Explores the relationship between entry into and success in Math 070 and looks at the relationship between entry mode and success/failure in the course.
3	ACCT 111	Sandy Balcer	Looks at student success in Accounting 111 compared to over success at HCC and examines the relationship between the English classes a student has taken and success in this course.

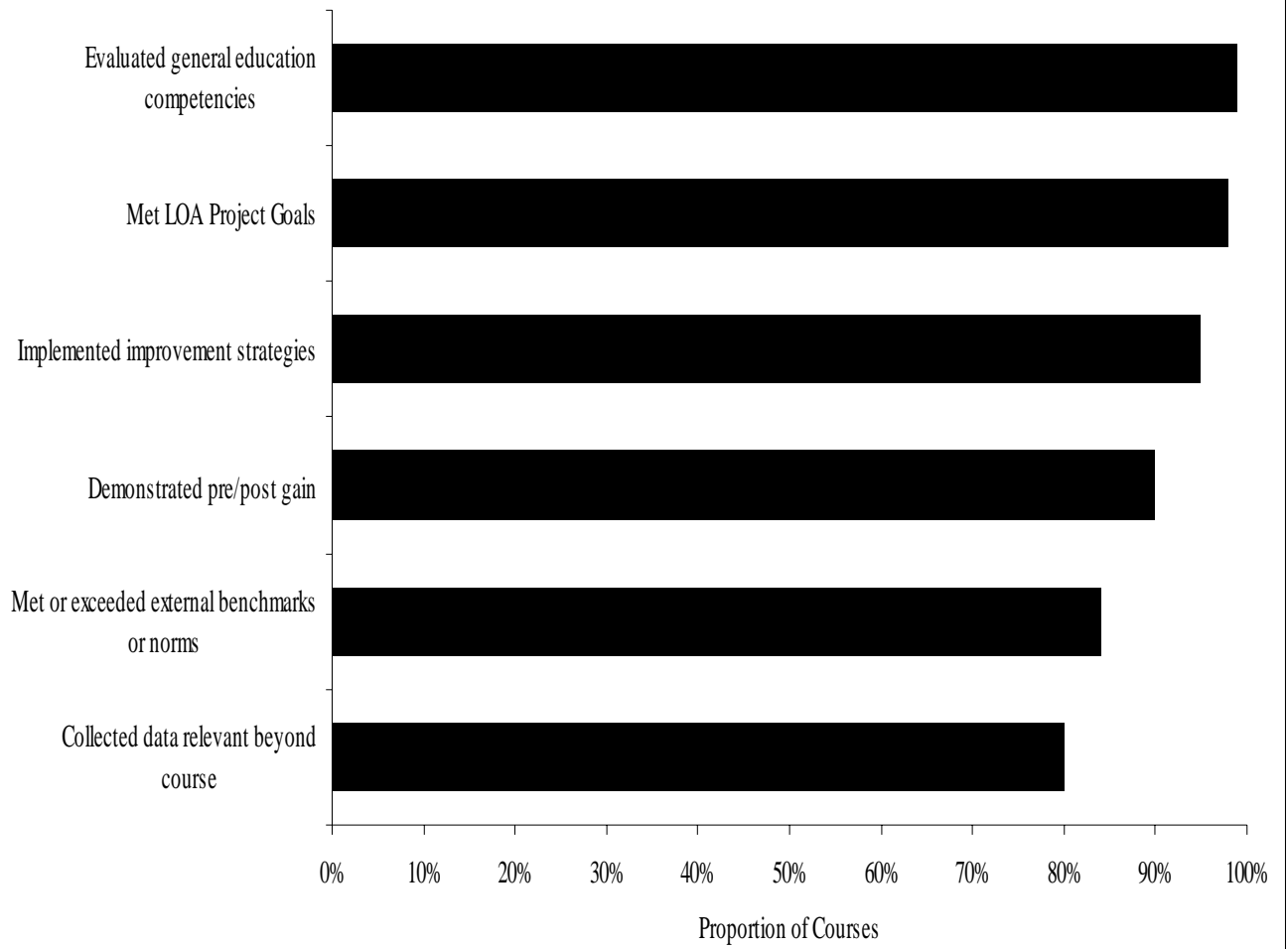
Program Review Projects 2004-2005

Year	Course/Program	Faculty	Description
1	Music	Deborah Kent	Review sequence of Music program courses to measure student success, acquisition of skills, and application of skills. Measure compliance with NMS standards.
1	Photography	Jan Starr	Develop and implement curriculum guide for introductory course and subsequent courses in the program.
1	Office Technology	Martha Matlick	Track student success in OT courses and student performance in general education core courses.
1	Psychology	Jim Bell	Measure student performance in introductory course and track student success in subsequent courses in the program. Evaluate program transfer rates and student success in first semester at 4-year school.
1	EMS	Angel Burba	Evaluate student success in acquiring and applying skills necessary to the field. Track pass rates on national certification exam.
1	Math	Math Faculty	Math experience survey to gauge student reasons for student success/failure in math. Review of alternative methods of instruction and comparison of computer-based and instructor-led curricula.
1	Engineering	Scott Foerster	Measure student success in acquiring skills need to pass program-relevant sections of national engineering licensing exam.
1	Dev English	Jean Svacina	On hold due to division chair sabbatical and Jean Svacina as acting chair.
1	Writing Intensive	Jude Okpala	Review of writing intensive courses and handbook; update of writing intensive handbook.

Howard Community College Learning Outcomes Assessment Projects
Matched to General Education (Institutional Learning) Goals 2004-2005

Competency	Program Review	Course Review	Assessment Measures
Written and oral communication	Writing Intensive Program	Accounting 111 English 087 English 093 English 094 English 096 English 097 English 106 Education 111	Portfolio analysis Pre/post tests Student reflections Course success rates Course assignments, with/without rubrics Academic Profile IDEA survey
Scientific and quantitative reasoning	Nursing Program	Astronomy 104 Biology 101 CAAD 101 Electronics 140 Math 064, 065, 067 Math 070 Math 127 Math 138 Math 150 Math 250 Physics 106, 203/04	National exams Pre/post tests Course success rates Course assignments, with/without rubrics External evaluators IDEA survey
Critical analysis and reasoning	Fine Arts Program Nursing Program Study Abroad Program	Art 101 Music 101 and 102 History 121 History 122 HMDV 100 HEED 213 Italian 101 Political Sci101 Psychology 101 Psychology 202/203 Spanish 101/102	National exams Pre/post tests Course success rates Course assignments, with and without rubrics External evaluators IDEA survey
Information literacy	Study Abroad Program CMSY Program	English 106 Psychology 101 Psychology 202 History 122 Spanish 101/102 Office 293 and 297 Physics 106	Online evaluation tools Pre/post tests Course success rates Course assignments, with and without rubrics External standards IDEA survey
Technology	Office Technology Program Career Portfolio Project CMSY Program	CAAD 101 CMSY 219 Math 064 Math 067 Math 070 Physics 106 Office 293 and 297	National exams Pre/post tests Course success rates Course assignments, with/without rubrics External evaluators IDEA survey

Learning Outcomes Assessment Results: 2003-2004 (N=37 Courses)



**Examples of Learning Improvement Strategies Implemented
as a Result of Outcomes Assessment**

Course	Year	Strategy
ARTT 109	2003-2004	Rubric evaluation of portfolio demonstrated lack of consistency across ARTT 109 sections. Faculty curriculum guide revised to provide specific examples of how to teach key course concepts
PHYS 106	2003-2004	Student feedback from course survey indicated that some course assignments were more effective than others as preparation for teaching science in elementary school classroom. Assignments evaluated as less effective were redesigned and feedback from Fall 04 semester is positive about impact of changes.
Math 131	2003-2004	Compared success in this course based on path into the class (placed in by exam or took developmental course sequence). Results demonstrated that students who took developmental course sequence succeeded at higher rates than those who placed in. Strategies are being implemented to measure extent of fundamental math knowledge of those students who place in.
ITAL 101	2003-2004	Studied student persistence from first year Italian courses to upper level Italian courses. Found that students needed impetus to continue their study of this language. Summer study abroad program in Italy designed as a result and will be implemented in summer 05.
MUSIC 110, 111	2003-2004	Evaluation of students' pre/post ability in music theory demonstrated need for additional practical application of theory. Course in keyboarding designed and implemented as a result to provide students additional practical application opportunities.
ASTR 104	2003-2004	Examined relationship of student algebra skills with performance in course. Found that higher levels of algebra skills predicted greater success in course. Resulted in review of course syllabus by math faculty to compare math prerequisites for the course with course requirements.

Program Review Example

HCC CMSY-Computer Systems Project Coordinator: Martha Matlick

This project involved a review of students enrolled in the CMSY program and their success in general education courses. This review looked at students who completed CMSY 101, 102, 103, or 116 beginning in fall 2002 and continuing through summer 2004. There were 132 students in the review. Students may have enrolled in more than one course in the general education subject areas.

The average number of completed credits for the 132 students included in this review was 19.84. The average GPA was 2.29. Courses selected for this review were accounting, astronomy, biology, business management, chemistry, computer systems, English, geology, mathematics, meteorology, office technology, and speech. The students' average course grades are listed below.

Course	Number of Students	Average Course Grade
ACCT-111	7	2.29
BIOL (All courses)	30	2.13
BMGT 100/178	5	3.40
CHEM (All courses)	7	2.43
CMSY 101, 102, 103, 104, 116, 117, 118, 127, 129	246	2.03
ENGL-121	11	2.18
MATH (all courses)	67	1.93
OFFI-100, 102, 177	10	1.70
SPCH 105/110	11	2.73

Success rates for these students were also examined, comparing success in their CMSY, office technology, and business management courses with their success in their general education courses. The following tables detail these results. Further analysis will be conducted to compare CMSY student performance in these courses with the general student population also enrolled in these courses.

COURSE GRADES AND SUCCESS RATES										
Course Grade	BIOL		CHEM		ENGL-121		MATH		SPCH	
	N	%	N	%	N	%	N	%	N	%
A	7	23	2	29	1	9	10	14	5	46
B	6	20	2	29	4	36	16	23	2	18
C	6	20	1	14	4	36	20	29	2	18
D	6	20	1	14			1	1		
F	5	17	1	14	2	19	20	29	2	18
L							2	3		
N										
NA										
NG							1	1		
Grade Not Listed	30	100	7	100	11	100	70	100	11	100
Success Rate	83%		86%		81%		70%		82%	

COURSE GRADES AND SUCCESS RATES								
COURSE GRADE	ACCT-111		BMGT-100/178		CMSY 101, 102, 103, 104, 116, 117, 118, 127, 129		OFFI 100, 102, 177	
	N	%	N	%	N	%	N	%
A	2	29	2	40	61	23	2	18
B	2	29	3	60	57	22	1	9
C					36	14	2	18
D	2	29			13	5	2	18
F	1	13			79	30	3	28
L								
N					13	5		
NA					3	1	1	9
Grade not Listed					1	0		
Total	7	100	5	100	263	100	11	100
Success Rate	87%		100%		68%		70%	

Results from these analyses demonstrated that students enrolled in the CMSY program were performing consistently in both their major courses and their general education requirements. Success rates were strong in both areas and mean cumulative GPA (2.29) also demonstrated overall success.

External Benchmarking Example

HCC Anatomy and Physiology (BIOL 203/204)

Lead Faculty: Patty Turner

During the first year of the biology 203/204 anatomy and physiology assessment project at HCC, students were asked to complete the Human Anatomy and Physiology Society (HAPS) Standardized Test (2001 Version) for Human Anatomy and Physiology. This test is designed and distributed (free of charge) by HAPS. HAPS is an organization dedicated to enhancing the quality of anatomy and physiology education at colleges, universities and related institutions. Its membership is largely comprised of educators working in the U.S. and Canada, in the area of anatomy and physiology, who are interested in innovation, collaboration, and professional development. The examination is designed to be administered to students after completion of a two-semester course sequence in human anatomy and physiology. It is recommended that the test be used for program, rather than student, assessment. The exam is linked to the HAPS Core Curriculum. This core curriculum emphasized basic knowledge of the understanding of the scientific method and application of knowledge and skills to real situations. The HAPS core curriculum closely matches the HCC BIOL 203 and 204 curriculums. By comparing HCC student performance overall, and on specific topics, to the data provided by the HAPS organization, specific strengths and weaknesses can be identified in the HCC program.

The HAPS examination consists of 100 multiple choice questions that are distributed evenly between BIOL 203 and BIOL 204 course objectives. Forty percent of the questions assess mastery of anatomy and 60 percent of the questions assess mastery of physiology. Normative data is provided by the HAPS organization. HCC students who elected to take this exam wee give ½ point of extra credit for each correct response on the exam, with no penalty for wrong answers. The points were then used in the calculation of their BIOL 204 final grade. Students could sit for the exam by attending one of several sessions that were scheduled during their final exam week. Results are shown in the following table.

HAPS National Average 2-Year Institution	HAPS National Average 4-Year Institution	HCC Spring 2004	HCC Summer I 2004	HCC Summer III 2004	HCC Fall 2004
50.8	57.54	53.03	53.55	56.83	53.93