

Annual Goals for Chemistry and Industrial Hygiene

2011-2012

Goal 1:	Faculty Evaluation Criteria
Description:	To review the Department's "Criteria for the Evaluation of Faculty" adopted in August of 2009.
Budget:	0.00
University Goals Supported:	1
Strategic Goals Supported:	
Responsibility:	Department Chair
Participation:	Departmental Faculty
Results:	All faculty in the department met last fall to discuss and revise the department's policy on evaluation of faculty. Each section of the policy was reviewed and discussed.
Actions/Improvements:	As a result of the policy review, some minor but important changes were made. The departmental policy requires that each faculty member present the department chair with an annual summary portfolio. In the past, the summary portfolio was due on the first day of classes each fall semester. At that time, a tenure/promotion review committee would meet and score each faculty member according the procedure outlined in the evaluation criteria. The deadline was not only a bit inconvenient for faculty as they prepared to begin the new academic year, but it left little time for the committee to meet, discuss, and score each member before the department chair was to provide written feedback to the faculty members (a September 15 deadline established in the faculty handbook). The policy has been revised so that summary portfolios are due by the Friday after spring break. In this way, there is ample time for the review committee to meet before the end of the spring semester, the department chair has time in the summer to prepare the written evaluations, and, a person applying for tenure can receive one last round of written feedback just prior to submitting their official portfolio and application for tenure.

**Future
Actions/Improvements:**

Goal 2:	Career Opportunities
Description:	Various career opportunities (i.e., job openings, internships, etc.), often come to us via mail, phone, and email. Our goal is to devise a system whereby we can disseminate this information more effectively to make sure our current students and alumni are aware of these opportunities, as well as to maximize the potential for local companies to be able to meet their needs without having to search outside the region.
Budget:	0.00
University Goals Supported:	2,5
Strategic Goals Supported:	
Responsibility:	Department Chair
Participation:	Program Coordinators
Results:	Most, if not all co-ops and summer internships are now managed by UNA Career Services, and these opportunities are posted on Lion Jobs. Although some employers seeking candidates for full time jobs also use Career Services, many companies still prefer to contact the department chair and/or program coordinators directly.
Actions/Improvements:	It is not uncommon for us to be made aware of job opportunities via email and phone. More often than not, the job opportunities come directly to the department chair and/or the industrial hygiene program coordinator. Although no official policy was adopted, we have implemented a system whereby all job opportunities are communicated to the appropriate faculty via email. Job opportunities in industrial hygiene are forwarded to the industrial hygiene program coordinator by the department chair and vice versa. Job opportunities in chemistry are forwarded to all chemistry faculty. In this way, faculty have the option of approaching qualified students and/or simply forwarding these emails onto their classes via UNA Portal and/or Angel. In all cases, the emailed job opportunities are copied to the Administrative Assistant who in turn checks upcoming graduate and recent graduate lists for qualified/interested candidates.

**Future
Actions/Improvements:**

Goal 3:	Laboratory Withdrawal Policy
Description:	To review our current laboratory withdrawal policy. Currently we require students to drop both lecture and laboratory simultaneously. This can sometimes seem punishing to a student, especially when it is very late in the semester. The policy will be reviewed and edited as necessary to assure that it leads to the appropriate actions.
Budget:	0.00
University Goals Supported:	1
Strategic Goals Supported:	409,410
Responsibility:	Department Chair
Participation:	Departmental Faculty
Results:	The departmental laboratory drop policy was reviewed and discussed early in the fall semester. The advantages and disadvantages of allowing students to drop a lab or lecture while remaining in the other were considered.
Actions/Improvements:	During the fall meeting, it was decided to allow students to drop the lecture portion of a course while remaining in the laboratory portion (which are required to be taken concurrently) given that they meet the established deadlines (and vice versa). The new policy was unanimously adopted. The new policy was implemented during the 2011 fall semester and continued during the 2012 spring semester. After this trial period, the policy was re-evaluated in May of this year. Some of the disadvantages of this policy change had surfaced and it was determined that the disadvantages actually outweighed the advantages. As a result, the policy was revised and we are once again requiring students to take both the lecture and laboratory concurrently meaning that if one is dropped, both have to be dropped. It was agreed that the department chair could use discretion in evaluating special cases and has the option of allowing a student to drop one without the other should that be deemed necessary.
Future Actions/Improvements:	

Goal 4:	Quality Enhancement Plan
Description:	To develop a quality enhancement plan for both majors offered in

our department (chemistry and industrial hygiene).

Budget: 0.00

University Goals Supported: 1

Strategic Goals Supported:

Responsibility: Department Chair

Participation: Program Coordinator, Departmental QEP Representative

Results: Quality enhancement plans were developed for both majors in the department (chemistry and industrial hygiene).

Actions/Improvements: Research literacy skills expected at three levels (Levels 1, 2, and 3) were defined for each major. In addition, for each major, courses corresponding to these levels of research literacy were identified so that the outcomes could be assessed in upcoming years. Where possible, the outcomes for the QEP were linked to outcomes being assessed for ACS approval and/or ABET certification.

Future Actions/Improvements:

Goal 5: Recruitment

Description: To enhance our recruitment efforts so that we target minority students, junior high, high school, and current UNA students.

Budget: 0.00

University Goals Supported: 3,5

Strategic Goals Supported:

Responsibility: Department Chair

Participation: Program Coordinators

Results: We continued targeting minority students through presentations to the students in the Presidential Mentors Academy (PMA) Program at UNA. In addition, we changed the student information section on the exams used in our annual high school exam competition to include race and gender so that promising students could be contacted. General recruitment activities included participation in

the Shoals High School Career Fair and UNA Preview Day

Actions/Improvements: In thinking about additional ways to recruit, we often say that we get most of our majors from students already on campus. We have decided to make efforts to contact undecided students to let them know of our majors. The initial effort has been to send brochures to undecided majors attending SOAR and to invite them to visit our department.

**Future
Actions/Improvements:**

Long-Term Goals for Chemistry and Industrial Hygiene

2011-2012

Title:	ACS Certification
Description:	To maintain ACS certification of the professional chemistry major.
Budget:	0
University Goals:	1
Accomplished:	The periodic review (once known as the five year review) was submitted to the ACS in 2009. There was a delay of approximately one year in receiving feedback from the periodic review report. The delay was apparently due to some internal changes within the ACS, and not a reflection on our report. We finally received confirmation of our continued program approval last fall. There were no negative findings that needed to be addressed before the next periodic review.
Spent:	\$0.00

Title:	ABET Accreditation
Description:	Maintaining ABET accreditation for the industrial hygiene major.
Budget:	0
University Goals:	1
Accomplished:	We are approximately one year out from our next five year review. Dr. Figueroa has been compiling assessment data and streamlining the process. The next academic year will be a critical year for data collection, as well as archiving copies of student work which must be displayed during the on-site review. We are in the process of preparing an alumni and employer survey.
Spent:	\$0.00

Student Learning Outcomes for Chemistry

2011-2012

Outcome 1:	Gather, Process, and Interpret Data
Description:	Knowledge-based outcome: Students will be able to gather, process, and interpret data. Outcome directly measured in CH 322L/432L.
Budget:	\$0
Core Competencies Supported:	3,4,5
Assessed How Often:	Every year
Assessed this Year?	Yes
Responsibility:	Course Instructors
Participation:	Department Chair
Direct Assessments	

Written Laboratory Reports

Indirect Assessments

Results:	These outcomes are assessed using the graded laboratory reports from CH 321LW in the fall of 2011, and CH 322LW in the spring of 2012. The average grade on laboratory reports handed in by students in CH 321LW in the fall of 2011 was 89%. The average grade on laboratory reports handed in by students in CH 322LW in the spring of 2012 was 91%. Grading rubric is attached.
Curriculum Actions/Improvements:	None
Other Actions/Improvements:	Based on the laboratory report average, it appears that our students are capable of collecting, processing, and interpreting data, and also

communicating the results.

Outcome 2:	Spectroscopy
Description:	Knowledge-based outcome: Students will be able to demonstrate the ability to understand and interpret spectroscopic data. Outcome directly measured in CH 312 and CH 322L/432L.
Budget:	\$0
Core Competencies Supported:	3,4,5
Assessed How Often:	Every year
Assessed this Year?	Yes
Responsibility:	Course Instructors
Participation:	Department Chair
Direct Assessments	
	Subject Specific ACS Final Exam
	Subject Specific ACS Final Exam
Indirect Assessments	
Results:	This outcome is assessed in two courses, CH 312 and CH 322. When considering both courses as an aggregate, a total of 52% of students demonstrated appropriate level of knowledge.
Curriculum Actions/Improvements:	None.
Other Actions/Improvements:	Although the percentage was slightly higher than in the previous year's assessment, it appears there is a need to focus more on spectral interpretation as opposed to actual instrument function.

Outcome 3:	Solutions
Description:	Knowledge-based outcome: Students will be able to demonstrate

	knowledge of solution chemistry. Outcome directly measured in CH 321.
Budget:	\$0
Core Competencies Supported:	4,5
Assessed How Often:	Every year
Assessed this Year?	Yes
Responsibility:	Course Instructors
Participation:	Department Chair
Direct Assessments	
	Subject Specific ACS Final Exam
	Subject Specific ACS Final Exam

Indirect Assessments

Results:	A total of 65% of students demonstrated appropriate level of knowledge.
Curriculum Actions/Improvements:	No
Other Actions/Improvements:	The percentage of students demonstrating appropriate knowledge was significantly higher than the previous year (65% versus 39% for the 2010-2011 year). No specific actions are planned at this time.

Outcome 4:	Critical Thinking
Description:	Knowledge-based outcome: Students will be able to think critically. Outcome directly measured in CH 341/CH 381.
Budget:	\$0
Core Competencies Supported:	2

Assessed How Often:	Every year
Assessed this Year?	Yes
Responsibility:	Course Instructors
Participation:	Department Chair
Direct Assessments	

Critical Thinking Exercises

Indirect Assessments

Results:	A total of 87% of students demonstrated appropriate level of skill on critical thinking exercises.
Curriculum Actions/Improvements:	None.
Other Actions/Improvements:	We will continue to assess student's abilities to think critically. No additional actions are planned at this time.

Outcome 5:	Design and Perform an Experiment
Description:	Knowledge-based outcome: Students will be able to design and perform an experiment. Outcome directly measured in CH 341L/CH 381L.
Budget:	\$0
Core Competencies Supported:	3,4,5
Assessed How Often:	Every year
Assessed this Year?	Yes
Responsibility:	Course Instructors
Participation:	Department Chair
Direct Assessments	

Laboratory Final Exam

Indirect Assessments

Results:	A total of 75% of students demonstrated an appropriate level of skill.
Curriculum Actions/Improvements:	None.
Other Actions/Improvements:	Experimental design continues to be a skill that we wish to emphasize. We will continue to train and assess in this area. No other specific actions are planned at this time.

Outcome 6:	Stoichiometry
Description:	Knowledge-based outcome: Students will be able to demonstrate the use of stoichiometry. Outcome directly measured in CH 111 and CH 321.
Budget:	\$0
Core Competencies Supported:	4,5
Assessed How Often:	Every year
Assessed this Year?	Yes
Responsibility:	Course Instructors
Participation:	Department Chair

Direct Assessments

Subject Specific ACS Final Exam
Subject Specific ACS Final Exam

Indirect Assessments

Results: This knowledge based outcome is assessed in two different courses, CH 111 and CH 321. When considering the weighted average of the results from the two courses, approximately 70% of students evaluated demonstrated an appropriate level of knowledge of stoichiometry.

**Curriculum
Actions/Improvements:** None.

**Other
Actions/Improvements:** Instructor plans to use more in class and homework exercises which focus on these fundamental principles.

Outcome 7: Thermodynamics

Description: Knowledge-based outcome: Students will be able to quantitatively employ chemical thermodynamics. Outcome directly measured in CH 341 and CH 382.

Budget: \$0

**Core Competencies
Supported:** 4,5

Assessed How Often: Every year

Assessed this Year? Yes

Responsibility: Course Instructors

Participation: Department Chair

Direct Assessments

Subject Specific ACS Final Exam

Subject Specific ACS Final Exam

Indirect Assessments

Results: This knowledge based outcome is assessed in physical chemistry,

but it two classes that are taught at a different level (i.e., CH 341 and CH 382). In CH 341, a total of 47% of students demonstrated sufficient knowledge of kinetics, but in CH 382, the percentage was 67%. The sample size in CH 382 for the 2011-2012 academic year was small (two students) and only three questions on the comprehensive final exam were used for assessment. This sample size is not unusual in this upper level course. When weighting the average results from CH 341 and CH 382, the average performance was 49%.

**Curriculum
Actions/Improvements:**

None.

**Other
Actions/Improvements:**

None at this time.

Outcome 8:

Kinetics

Description:

Knowledge-based outcome: Students will be able to apply concepts of chemical kinetics. Outcome directly measured in CH 341 and CH 382.

Budget:

\$0

**Core Competencies
Supported:**

4,5

Assessed How Often:

Every year

Assessed this Year?

Yes

Responsibility:

Course Instructors

Participation:

Department Chair

Direct Assessments

Subject Specific ACS Final Exam

Subject Specific ACS Final Exam

Indirect Assessments

Results: This knowledge based outcome is assessed in physical chemistry, but it two classes that are taught at a different level (i.e., CH 341 and CH 382). In CH 341, a total of 39% of students demonstrated sufficient knowledge of kinetics, but in CH 382, the percentage was 83%. The sample size in CH 382 for the 2011-2012 academic year was small (two students) and only three questions on the comprehensive final exam were used for assessment. This sample size is not unusual in this upper level course. When weighting the average results from CH 341 and CH 382, the average performance was 44%.

**Curriculum
Actions/Improvements:** None.

**Other
Actions/Improvements:** None at this time.

Outcome 9: Knowledge of Bonding Theory

Description: Knowledge-based outcome: Students will be able to demonstrate knowledge of bonding theory. Outcome directly measured in CH 111 and CH 312.

Budget: \$0

**Core Competencies
Supported:** 4,5

Assessed How Often: Every year

Assessed this Year? Yes

Responsibility: Course Instructors

Participation: Department Chair

Direct Assessments

Subject Specific ACS Final Exam

Subject Specific ACS Final Exam

Indirect Assessments

Results: This outcome is assessed in two separate courses. When considering the weighted average of the results from each class, a total of 42% of students demonstrated appropriate level of knowledge for this outcome.

Curriculum None.

Actions/Improvements:

Other Course specific plans: CH 111 - As this material comes from the last chapter we typically cover in CH 111, I will work towards leaving more time at the end of the semester to more adequately cover this material. CH 312 - Take more time going through the introductory material, including hybridization. Review hybridization when discussing deprotonation of an alpha-proton during the second semester

Outcome 10: Communicate Results and Information

Description: Knowledge-based outcome: Students will be able to communicate results and information. Outcome directly measured in CH 321 and CH 382.

Budget: \$0

Core Competencies Supported: 1,5

Assessed How Often: Every year

Assessed this Year? Yes

Responsibility: Course Instructors

Participation: Department Chair

Direct Assessments

Written Laboratory Reports

Indirect Assessments

Results: These outcomes are assessed using the graded laboratory reports

from CH 321LW in the fall of 2011, and CH 322LW in the spring of 2012. The average grade on laboratory reports handed in by students in CH 321LW in the fall of 2011 was 89%. The average grade on laboratory reports handed in by students in CH 322LW in the spring of 2012 was 91%. Grading rubric is attached.

Curriculum

Actions/Improvements:

None

Other

Actions/Improvements:

Based on the laboratory report average, it appears that our students are capable of collecting, processing, and interpreting data, and also communicating the results.

Student Learning Outcomes for Chemistry

2011-2012

Outcome 1:	Knowledge of Bonding Theory
Description:	Knowledge-based outcome: Students will be able to demonstrate knowledge of bonding theory. Outcome directly measured in CH 111 and CH 312.
Budget:	\$0.00
Core Competencies Supported:	4,5
Assessed How Often:	
Assessed this Year?	
Responsibility:	
Participation:	
Direct Assessments	

Indirect Assessments

Results:

**Curriculum
Actions/Improvements:**

**Other
Actions/Improvements:**

Future Actions:

Outcome 2:	Kinetics
Description:	Knowledge-based outcome: Students will be able to apply

concepts of chemical kinetics. Outcome directly measured in CH 341 and CH 382.

Budget: \$0.00

Core Competencies Supported: 4,5

Assessed How Often:

Assessed this Year?

Responsibility:

Participation:

Direct Assessments

Indirect Assessments

Results:

Curriculum Actions/Improvements:

Other Actions/Improvements:

Future Actions:

Outcome 3: Thermodynamics

Description: Knowledge-based outcome: Students will be able to quantitatively employ chemical thermodynamics. Outcome directly measured in CH 341 and CH 382.

Budget: \$0.00

Core Competencies Supported: 4,5

Assessed How Often:

Assessed this Year?

Responsibility:

Participation:

Direct Assessments

Indirect Assessments

Results:

Curriculum

Actions/Improvements:

Other

Actions/Improvements:

Future Actions:

Outcome 4:

Stoichiometry

Description:

Knowledge-based outcome: Students will be able to demonstrate the use of stoichiometry. Outcome directly measured in CH 111 and CH 321.

Budget:

\$0.00

Core Competencies

Supported:

4,5

Assessed How Often:

Assessed this Year?

Responsibility:

Participation:

Direct Assessments

Indirect Assessments

Results:

Curriculum

Actions/Improvements:

Other

Actions/Improvements:

Future Actions:

Outcome 5:

Design and Perform an Experiment

Description:

Knowledge-based outcome: Students will be able to design and perform an experiment. Outcome directly measured in CH 341L/CH 381L.

Budget:

\$0.00

**Core Competencies
Supported:**

3,4,5

Assessed How Often:

Assessed this Year?

Responsibility:

Participation:

Direct Assessments

Indirect Assessments

Results:

Curriculum

Actions/Improvements:

Other

Actions/Improvements:

Future Actions:

Outcome 6: Critical Thinking

Description: Knowledge-based outcome: Students will be able to think critically. Outcome directly measured in CH 341/CH 381.

Budget: \$0.00

Core Competencies Supported: 2

Assessed How Often:

Assessed this Year?

Responsibility:

Participation:

Direct Assessments

Indirect Assessments

Results:

Curriculum

Actions/Improvements:

Other

Actions/Improvements:

Future Actions:

Outcome 7: Solutions

Description: Knowledge-based outcome: Students will be able to demonstrate

knowledge of solution chemistry. Outcome directly measured in CH 321.

Budget: \$0.00

Core Competencies Supported: 4,5

Assessed How Often:

Assessed this Year?

Responsibility:

Participation:

Direct Assessments

Indirect Assessments

Results:

Curriculum Actions/Improvements:

Other Actions/Improvements:

Future Actions:

Outcome 8: Spectroscopy

Description: Knowledge-based outcome: Students will be able to demonstrate the ability to understand and interpret spectroscopic data. Outcome directly measured in CH 312 and CH 322L/432L.

Budget: \$0.00

Core Competencies Supported: 3,4,5

Assessed How Often:

Assessed this Year?

Responsibility:

Participation:

Direct Assessments

Indirect Assessments

Results:

Curriculum

Actions/Improvements:

Other

Actions/Improvements:

Future Actions:

Outcome 9:

Gather, Process, and Interpret Data

Description:

Knowledge-based outcome: Students will be able to gather, process, and interpret data. Outcome directly measured in CH 322L/432L.

Budget:

\$0.00

Core Competencies

Supported:

3,4,5

Assessed How Often:

Assessed this Year?

Responsibility:

Participation:

Direct Assessments

Indirect Assessments

Results:

Curriculum

Actions/Improvements:

Other

Actions/Improvements:

Future Actions:

Outcome 10:

Communicate Results and Information

Description:

Knowledge-based outcome: Students will be able to communicate results and information. Outcome directly measured in CH 321 and CH 382.

Budget:

\$0.00

**Core Competencies
Supported:**

1,5

Assessed How Often:

Assessed this Year?

Responsibility:

Participation:

Direct Assessments

Indirect Assessments

Results:

Curriculum

Actions/Improvements:

Other

Actions/Improvements:

Future Actions: