

**Student Learning Outcomes Assessment 2017**

Department: Chemistry

Program: ASSC-Pre-Pharm

Objectives	Direct Assessment(s)	Indirect Assessment(s)	Analysis of Results	Action Item(s) for Assessment Tool	Action Item(s) for Assessment Results	Implemented Action Items (Y/N, date)
1. Students will develop skills of analysis, synthesis, critical thinking, problem solving – largely via the scientific method.	ACS Prin. Of Chem. Final ACS Org Chem. Final  PCAT	GPA and credits earned in required courses.  Acceptance to Pharmacy Schools	2 Soph (of 3) met Org. exam goal (2016)  1 Soph (of 3) admitted (2016)	Use of ACS Org. Chem. Final as capstone		Yes, May 2016
2. Students will acquire a core knowledge in chemistry and allied natural sciences.	ACS Prin. Of Chem. Final ACS Org Chem. Final  PCAT	GPA and credits earned in required courses.  Acceptance to Pharmacy Schools	2 Soph (of 3) met Org. exam goal (2016)  1 Soph (of 3) admitted (2016)	Use of ACS Org. Chem. Final as capstone		Yes, May 2016
3. Students will gain an understanding of current social and ethical issues in chemistry.		Progress through program, GPA	None this year.			
4. Students will develop written and oral communication skills, appropriate for the discipline, necessary for the dissemination of technical information.	Lab. reports, research seminars by invited guests.	Progress through program, Course grades.	None this year.			
5. Students will gain the extensive technical knowledge and skills required of a professional chemist.	ACS Prin. Of Chem. Final, Lab. Reports ACS Organic Chem. Final, Lab. reports.  PCAT	Progress through program, evidenced by GPA and credits earned in required courses.  Acceptance to Pharmacy Schools	1 Soph (of 3) admitted (2016)			

**Program: BASC-Chemistry (Secondary Ed. Cognate)**

Objectives	Direct Assessment(s)	Indirect Assessment(s)	Analysis of Results	Action Item(s) for Assessment Tool	Action Item(s) for Assessment Results	Implemented Action Items (Y/N, date)
1. Students will develop skills of analysis, synthesis, critical thinking, problem solving – largely via the scientific method.	ACS Prin. Of Chem. Final ACS Organic Chem. Final  Departmental capstone exam	GPA and credits earned in required courses.  Awards, internships, research experience.  Pharm. prog. acceptance	No intern-ships (2012-17)  6 Srs. (of 8) met exam goal (2012-17)  3 Srs. (of 6) in Pharm. D. progs* (2012-17)	Modify/ Improve capstone exam.	Questions added, including lab comp.	Y 2016
2. Students will acquire a core knowledge in chemistry and allied natural sciences.	ACS Prin. Of Chem. Final ACS Organic Chem. Final  Departmental capstone exam	Progress through program, evidenced by GPA and credits earned in required courses.  Awards, internships, research experience.  Pharm. school acceptance	No intern-ships. (2012-17)  7 Srs. (of 8) met exam goal (2012-17)  3 Srs.(of 6) in Pharm. D. progs* (2012-17)	Modify/ Improve capstone exam.	Questions added, including lab comp.	Y 2016
3. Students will gain an understanding of current social and ethical issues in chemistry.	Departmental capstone exam	Course grades.	7 Srs. (of 8) met exam goal (2012-17)	Expand ethics component in capstone exam.	None.	Y 2017

4. Students will develop written and oral communication skills, appropriate for the discipline, necessary for the dissemination of technical information.	Lab. reports, literature reports, literature seminars, research seminars.	Progress through program, evidenced by GPA and credits earned in required courses.  Presentations of research posters at meetings.	None this year.	Identify a candidate assessment tool.	None.	
5. Students will gain the extensive technical knowledge and skills required of a professional chemist.	Lab. reports, research reports, research seminars  Departmental capstone exam	Progress through program, evidenced by GPA and credits earned in required courses.  Awards, internships, research experience.  Pharm. school acceptance	No intern-ships. (2012-17)  7 Srs. (of 8) met exam goal (2012-17)  3 Srs. (of 7) in Pharm. D. progs* (2012-17)	Identify a candidate assessment tool.	Questions added, including lab comp.	Y 2016

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**Program: BSSC-Chemistry**

Objectives	Direct Assessment(s)	Indirect Assessment(s)	Analysis of Results	Action Item(s) for Assessment Tool	Action Item(s) for Assessment Results	Implemented Action Items (Y/N, date)
1. Students will develop skills of analysis, synthesis, critical thinking, problem solving – largely via the scientific method.	ACS Prin. of Chem. Final ACS Organic Chem. Final Departmental capstone exam	Progress through program, evidenced by GPA and credits earned in required courses. Awards, internships, research experience. Program is approved by ACS. Grad. school acceptance	5 Jrs. (of 17) obtained summer internships (2012-17). 12 Srs. (of 15) met exam goal (2012-17) 2 Sr. (of 15) in Ph. D. prog.* (2012-17)	Modify/ Improve capstone exam.	Questions added, including lab comp.	Y 2016
2. Students will acquire a core knowledge in chemistry and allied natural sciences.	ACS Prin. of Chem. Final ACS Organic Chem. Final Departmental capstone exam	Progress through program, evidenced by GPA and credits earned in required courses. Awards, internships, research experience. Program is approved by ACS. Grad. school acceptance	5 Jrs. (of 17) obtained summer internships (2012-17). 12 Srs. (of 15) met exam goal (2012-17) 2 Sr. (of 15) in Ph. D. prog.* (2012-16)	Modify/ Improve capstone exam.	Questions added, including lab comp.	Y 2016
3. Students will gain an understanding of current social and ethical issues in chemistry.	Departmental capstone exam	Course grades. Program is approved by ACS.	10 Srs. (of 15) met exam goal (2012-17)	Expand ethics component in capstone exam.	None.	
4. Students will develop written and oral communication skills, appropriate for the discipline, necessary for the dissemination of technical information.	Lab. reports, literature reports, literature seminars, research seminars.	Progress through program, evidenced by GPA and credits earned in required courses. Presentations of research posters at meetings.	14 Srs. (of 15) met writ. Goal (2012-2017)	Identify and implement a candidate assessment tool.	Develop handbook of guidelines for stds pursuing research (Indep. Study).	Y 2017

		Program is approved by ACS.			Require stds to start research projects before last sem. of sr. yr.	
5. Students will gain the extensive technical knowledge and skills required of a professional chemist.	Lab. reports, research reports, research seminars  Departmental capstone exam	Progress through program, evidenced by GPA and credits earned in required courses.  Awards, internships, research experience.  Program is approved by ACS.  Grad. school acceptance	5 Jrs. (of 17) obtained summer internships (2012-17).  4 Sr. (of 7) met exam goal (2016-2017)  2 Sr. (of 15) in Ph. D. prog.* (2012-17)	Identify a candidate assessment tool.	Develop handbook of guidelines for stds pursuing research (Indep. Study).  Require stds to start research projects before last sem. of sr. yr.  Questions added, including lab comp.	Y 2016

\*Georgia Institute of Technology

**Program: BSSC-Biochemistry**

Objectives	Direct Assessment(s)	Indirect Assessment(s)	Analysis of Results	Action Item(s) for Assessment Tool	Action Item(s) for Assessment Results	Implemented Action Items (Y/N, date)
1. Students will develop skills of analysis, synthesis, critical thinking, problem solving – largely via the scientific method.	ACS Prin. Of Chem. Final ACS Organic Chem. Final  Departmental capstone exam	Progress through program, evidenced by GPA and credits earned in required courses.  Awards, internships, research experience.  Grad. school acceptance	11 Jrs. (of 32) & 4 sophs. obtained summer internships. (2012-17)  17 Srs. (of 27) met exam goal (2012-17)  9 Srs. (of 27) acc. to grad. sch.* (2012-17)	Modify/ Improve capstone exam.	Questions added, including lab comp.	Y 2016
2. Students will acquire a core knowledge in chemistry and allied natural sciences.	ACS Prin. Of Chem. Final  ACS Organic Chem. Final  Departmental capstone exam	Progress through program, evidenced by GPA and credits earned in required courses.  Awards, internships, research experience.  Grad. school acceptance	11 Jrs. (of 32) & 4 sophs. obtained summer internships. (2012-17)  22 Srs. (of 28) met exam goal (2012-17)  9 Srs. (of 28) acc. to grad. sch.* (2012-17)	Modify/ Improve capstone exam.	Questions added, including lab comp.	Y 2016
3. Students will gain an understanding of current social and ethical issues in chemistry.	Departmental capstone exam	Course grades.	9 Srs. (of 28) met exam goal (2012-17)	Expand ethics component of capstone exam.	None.	
4. Students will develop written and oral communication skills, appropriate for the discipline,	Lab. reports, literature reports, literature seminars, research seminars.	Progress through program, evidenced by GPA and credits earned in required courses.	27 Srs. (of 28) met goal (2012-2017)	Identify and implement a candidate	Develop handbook of guidelines for stds	Y 2017

necessary for the dissemination of technical information.		Presentations of research posters at meetings.		assessment tool.	pursuing research (Indep. Study).  Require stds pursuing research to start projects before last sem. of sr. yr.	
5. Students will gain the extensive technical knowledge and skills required of a professional chemist.	Lab. reports, research reports, research seminars  Departmental capstone exam	Progress through program, evidenced by GPA and credits earned in required courses.  Awards, internships, research experience.  Grad. school acceptance	11 Jrs. (of 32) & 4 sophs. obtained summer internships. (2012-17)  4 Srs. (of 9) met exam goal. (2016-2017)  10 Srs. (of 28) acc. to grad. sch.* (2012-17)	Identify a candidate assessment tool.	Develop handbook of guidelines for stds pursuing research (Indep. Study).  Require stds pursuing research to start projects before last sem. of sr. yr.  Questions added, including lab comp.	Y 2016

\*Among the schools to which students have been accepted are; Ph. D: Johns Hopkins Univ., Florida State Univ., Kent State Univ., Univ. of Denver, Univ. of Pittsburgh, Roswell Park Cancer Center; Pharm. D.: Duquesne Univ.; MS: Cornell Univ., Wilkes Univ.

**Program: BSSC-Forensic Science**

Objectives	Direct Assessment(s)	Indirect Assessment(s)	Analysis of Results	Action Item(s) for Assessment Tool	Action Item(s) for Assessment Results	Implemented Action Items (Y/N, date)
1. Students will develop skills of analysis, synthesis, critical thinking, problem solving – largely via the scientific method.	ACS Prin. Of Chem. Final ACS Organic Chem. Final Departmental capstone exam	Progress through program, evidenced by GPA and credits earned in required courses.  Awards, internships, research experience.  Grad. school acceptance	4 Jrs. (of 15) & 1 soph. obtained summer internships (2012-17)  9 Srs. (of 13) met exam goal (2012-17)  3 Srs. (of 13) acc. to grad. sch. (2 Ph. D., 1 MS)* (2012-17) 2 Srs. (of 15) in Ph.D. prog.* (2012-2017)	Modify/ Improve capstone exam.	Questions added, including lab comp.	Y 2016
2. Students will acquire a core knowledge in chemistry and allied natural sciences.	ACS Prin. Of Chem. Final ACS Organic Chem. Final Departmental capstone exam	Progress through program, evidenced by GPA and credits earned in required courses.  Awards, internships, research experience.  Grad. school acceptance	4 Jrs. (of 15) & 1 soph. obtained summer internships (2012-17)  11 Srs. (of 13) met exam goal (2012-17)  3 Srs. (of 13) acc. to grad. sch. (2 Ph. D., 1 MS)* (2012-17)	Modify/ Improve capstone exam.	Questions added, including lab comp..	Y 2016



3. Students will gain an understanding of current social and ethical issues in chemistry.	Departmental capstone exam	Course grades.	4 Sr. (of 13) met exam goal (2012-17)	Expand ethics component of capstone exam.	None.	
4. Students will develop written and oral communication skills, appropriate for the discipline, necessary for the dissemination of technical information.	Lab. reports, literature reports, literature seminars, research seminars.	Progress through program, evidenced by GPA and credits earned in required courses.  Presentations of research posters at meetings.	13 (of 13) Srs. met goal (2012-2017)	Identify a candidate assessment tool.	Biochem writing assignments. Develop guidelines / handbook for independent research projects. Require students to start research projects before last semester of senior year.	Y 2017
5. Students will gain the extensive technical knowledge and skills required of a professional chemist.	Lab. reports, research reports, research seminars  Departmental capstone exam	Progress through program, evidenced by GPA and credits earned in required courses.  Awards, internships, research experience.  Grad. school acceptance	4 Jrs. (of 12) & 1 soph. obtained summer internships (2012-17)  5 Sr. (of 7) met exam goal (2016-2017)  3 Srs (of 13) acc. to grad. sch. (2 Ph. D., 1 MS)* (2012-17)	Identify a candidate assessment tool.	Develop guidelines / handbook for independent research projects. Require students to start research projects before last semester of senior year. Questions added, including lab component	Y 2016

\*Florida International Univ., Miami Univ. of Ohio, Univ. of Illinois at Chicago.