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**Enhancing student learning through Technology Travel Course:
Agriculture Study Abroad program to Poland**

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Abstract. The Technology Travel Course (TSM 496) is an elective course that meets the university-wide international perspectives requirement. The course has a curricular home in the department of Agricultural and Biosystems Engineering (ABE), Iowa State University (ISU). It enables instructors to develop and offer a study abroad program structured as a faculty-led trip abroad. This course is also an excellent opportunity for students to learn/compare technology concepts and applications in an international context that is encouraged by the ABE External Advisory Board. The objectives of this paper are to (1) Review the application of TSM 496 to Ag Study Abroad trip to Poland (with cultural trips to Czech Republic, Denmark, Germany, Lithuania, and Ukraine, and to (2) summarize curricular enhancement of student learning objectives (SLOs) and competencies. The course has been offered yearly since 2011, and served 48 students from several majors in Agriculture & Life Sciences and Engineering colleges. The pre-departure course is focused on teaming up ISU students with students at two agricultural universities in Poland. Teams develop comparative projects focused on agriculture with specific emphasis on animal systems production, technology, environment, sustainability, and regulations. Projects are finalized and presented jointly at special Polish-American Student Workshops. The joint project format creates an opportunity to make friends with students in Poland while working on international projects. The scientific part of the program is a mix of field trips to farms, plants, co-ops, lab tours, cultural sites and activities. Students have many opportunities to socialize, get inspired by rich culture, history, science, agro business attitudes and the spirit of change. SLOs are measured with the program surveys. Currently 65 SLOs/competencies are enhanced with 17 provided by this program (26%). In addition, 25 new competencies are gained, a 38% increase to the new total of 90. Students highly rate this learning and often list it as a highlight of their college career thus far. Data analysis of the Program Evaluation Surveys shows high degree of developing student skills, meeting and enhancement of class goals, departmental and college SLOs.

Keywords. Education, hands-on learning, study abroad, travel course, technology

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Introduction

The Technology Travel Course (TSM 496) is an elective course that meets the university-wide international perspectives requirement. The course enables ABE instructors to develop and offer a study abroad program structured as a faculty-led trip abroad. This course is also an excellent opportunity for students to learn/compare technology concepts and applications in an international context that is encouraged by the ABE External Advisory Board. This course is consistent with departmental- and college-level student learning objectives. College-level programs exist to support students, staff and faculty international programs.

College-Level Student Learning Outcomes

Student learning outcomes (SLO) for the College of Agriculture and Life Sciences (CALs) at Iowa State University (ISU) are used for continuous improvement and assessment. The CALs website lists eight main SLOs areas for earning a baccalaureate degree (ISU, 2015a):

- (1) Professional, interpersonal and cross-cultural communications,
- (2) Problem-solving/critical thinking,
- (3) Leadership,
- (4) Entrepreneurship
- (5) Life-long Learning
- (6) Ethics
- (7) Environmental Awareness, and
- (8) International/Multi-Cultural Awareness

The International/multi-cultural awareness focuses on two areas: (A) U.S. Diversity, and (B) International Perspectives. Specifically, the latter states (ISU, 2015a)

“Students should achieve two of the following outcomes: They should be able to:

- (1) *Analyze the accuracy and relevancy of their own worldviews and anticipate how people from other nations may perceive that worldview.*
- (2) *Describe and analyze how cultures and societies around the world are formed, are sustained, and evolve*
- (3) *Analyze and evaluate the influence of global issues in their own lives*
- (4) *Describe the values and perspectives of cultures other than their own and discuss how they influence individuals' perceptions of global issues and or events*
- (5) *Communicate competently in a second language.”*

Agriculture Study Abroad Programs

Agriculture Study Abroad programs are an integral part of the College of Agriculture and Life Sciences (CALs) at Iowa State University (ISU). The Ag Study Abroad website lists the mission, goals, and resources as follows (ISU, 2015b):

Mission

The mission of the CALs study abroad office is to ensure students have high quality international academic opportunities through: (a) support to faculty who develop and integrate these opportunities into their curriculum, (b) support to students including advising and guiding them in the pre-trip, trip and post-trip phases, (c) scholarships to assist students in paying for these opportunities, and (d) the establishment of partnerships with universities and other institutions abroad..

Goals

- 1. Be a national leader in study abroad programs in terms of both quantity and quality to enhance students' ability to work and live successfully in a global society by*
 - Increasing the numbers of students who go abroad on all models of programs*
 - Cooperating with Center for Excellence in Learning and Teaching to enhance the learning experience*
 - Keeping program safety as a priority*
- 2. Maintain the quality service provided to faculty and staff by*
 - Encouraging and supporting faculty members in their international endeavors including*
 - creating international student programs in their academic and geographical areas of interest and research*

- *the application of faculty's intl. work in both the field of intl. education and in their own disciplines*
 - *Enhancing the flow of information regarding international opportunities available with Agriculture Study Abroad, and promoting these opportunities to faculty and staff, including new or newly interested faculty*
 - *Working with CALS departments to improve the evaluation and quality of international programs*
3. *Globalize the College of Agriculture and Life Sciences by*
- *Impacting non-mobile students through*
 - *Support to faculty in their efforts to bring global themes into the classroom*
 - *Organizing activities and opportunities for ISU's US students to interact with international faculty, visitors and students*
 - *Organizing activities for returned study abroad students to interact with students who have not studied abroad*
 - *Supporting international curricula through*
 - *Internship development for the Global Resource Systems major*
 - *Contributions to courses with global themes*
4. *Maintain strong communication with targeted groups to ensure a two-way understanding of what the communities need and what we can provide through enhancing communication with*
- *Students*
 - *Collaborators in CALS*
 - *Communities outside of CALS (alumni, donors, stakeholders)'*

The Ag Study Abroad office advises students on travel programs, resources, and scholarships. In addition, faculty and staff can receive help in developing and implementing international opportunities (accounting, logistical travel support, meeting university requirements, communicating with international partners, liaison with students, liaison with other university offices like financial aid, registrar, admissions, and treasurer.

Technology Travel Course

The Department of Agricultural and Biosystems Engineering has responded to the continuous improvement challenge and created Technology Travel Course as part of Agricultural Systems Technology curricula (TSM 496). This is an elective course that meets the international perspectives requirement and is consistent with CALS and departmental SLOs. Its catalog listing is as follows:

'Tour and study of international industrial technology and/or agricultural systems technology industries. Location and duration of tours will vary. Travel expenses paid by students.'

Objectives

The objectives of this paper are to:

1. Review the application of TSM 496 to the Ag Study Abroad trip to Poland (with cultural trips to Denmark, Czech Republic, Germany, Lithuania, and Ukraine, and
2. Summarize curricular enhancement of student learning objectives and competencies to engineering and technology programs.

Why Poland?

Poland is a European Union member since 2005 and NATO member since 1999. It is the 6th largest EU country located in Central Europe with approx. 38 million people. Poland has initiated the breakup of Soviet Union block resulting in the first democratic elections behind the Iron Curtain in June 1989. The gradual emergence of other democracies and German reunification followed. Poland has been experiencing generational change in technology as result of 1989 events and eventual preparation to join the EU. Poland's agricultural output quadrupled from 2001 to 2013. Agricultural exports doubled in the same time period. This expansion was due in part to the generational technology leap both in animal production systems and in environmental protection technologies that are meeting or responding to current and future mid-term EU directives. Travel costs are still below those in old UE countries. Poland's educational system is also rapidly changing as it must provide a cadre of highly STEM-trained students for today's global challenges. Thus, Poland with its opportunities, and borderless travel with other EU members presents an excellent opportunity for American students to learn and compare technology, agriculture, and their

impact on environment and sustainability. With that experience, students are better equipped for careers and life-long learning.

Methods

History of the Ag Study Abroad program to Poland

The Ag Study Abroad program to Poland was developed in the fall of 2010 using existing TSM 496 course offering and resources available through the Agriculture Study Abroad office. The idea to create this course came from an undergraduate student who approached the author about the possibility of creating a study abroad trip to Denmark, the student's ancestral home. Geographical proximity, family roots of the faculty member and the existing network of collaborating faculty made it possible to create the first program to Denmark, Germany and Poland. Student feedback from that first program indicated strong preference to experiences in Poland. The early feedback gave a strong preference to the social aspect of the course: i.e., interacting with local students and faculty. Thus, the program formula has changed and has been changing annually based on students' feedback, drive for continuous improvement and the spirit of learning. Table 1 documents the evolving nature of program destinations and key features. Example of a detailed trip program and agenda is shown in the Appendix.

Table 1. Summary of destinations and key features of the Ag Study Abroad Program to Poland

Year	Course (credit)	Destination	Key Features	# of ISU Students Served
2011	TSM 496 A (1) TSM 496 B (3)	Denmark, Germany and Poland (1 week each)	First trip. Visiting 1 Agriculture-focused university in Denmark and Poland, Ag research centers in Denmark and Germany.	8
2012	TSM 496 A (1) TSM 496 B (3)	Poland (base) with cultural trips to Germany and Czech Republic	Program established with local students participation at the Wroclaw University of Environmental and Life Sciences (WUELS).	9
2013	TSM 496 A (1) TSM 496 B (3)	Poland (base) with cultural trips to Germany and Ukraine	Pre-trip seminar focused on teaming up with Polish students and working on comparative projects. 1 st Polish-American Workshop at WUELS. MOU with WUELS signed.	10
2014	TSM 496 A (2) TSM 496 B (3)	Poland (base)	Program expanded to the 2 nd university, i.e., University of Warmia and Mazury (UWM). Pre-trip seminar focused on teaming up with Polish students and working on comparative projects at WUELS and UWM. 1 st Polish-American Workshop at UWM and 2 nd at WUELS. Small group of ISU faculty and staff visit to 3 Polish Ag-focused universities in Warsaw, Wroclaw (WUELS) and Olsztyn (UWM). MOU with UWM signed.	7
2015	TSM 496 A (2) TSM 496 B (3)	Poland (base) with short trip to Lithuania	3 rd Polish-American Workshop at WUELS. 2 nd Polish-American Workshop at UWM. Preparation of study abroad exchange programs with WUELS.	14
Note: TSM 496 A is pre-trip seminar offered in Spring semesters. TSM 496 B is the actual 3 week trip offered in early summer semester.				

Course description

The course preparation starts with course proposal and university approval, annual fall semester recruitment for the TSM 496A spring semester pre-departure (TSM 496A, 2 cr.) course. The program is advertised at university and college level Study Abroad fairs, or brochures, direct e-mail advertisement, displays on information boards, informational meetings, visits to student clubs and word of mouth. On-line applications are handled through the Ag Study Abroad office. Applications are due in late December. Selection has become competitive. The Spring semester seminar is focused on travel logistics, crash course in basic Polish, field trips, seminars on history, culture, agriculture, introduction to EU, and projects. The Spring course is followed by actual 3-week trip to Poland immediately after spring semester finals (May) (TSM 496B, 3 cr.). It has been offered each year since 2011, and has served 48 students. The course attracts students from several majors in the Agriculture and Life Sciences and Engineering colleges. The pre-departure course is focused on teaming up with students at two agricultural universities in Poland. Teams develop comparative projects focused on agriculture with specific emphasis on:

1. Animal systems production,
2. Technology,
3. Environment, and
4. Sustainability.

Projects are finalized and presented jointly at special Polish-American Student Workshops. The joint project format

creates an opportunity to make friends with students in Poland while working on international projects. Both Polish and American students participate in the scientific part of the program. The trip is a mix of field trips to farms, plants, and co-ops, lab tours, and cultural activities. Students have many opportunities to socialize, get inspired by rich culture, history, science, ag business attitudes and the spirit of change. Students prepare homework, journals, media (photo and video), pre-trip PowerPoint presentations and a summary project paper. Post trip deliverables consist of evidence of daily journaling, best photo/video footage, final joint PowerPoint project presentations (from Polish-American Workshops) and a final paper focused on synthesis of learned material, experiences and growth. The course is graded on an A-F scale using class participation and deliverables as the criteria. Most content is delivered via the on-line BlackBoard system.

Assessment of student learning

Three types of assessment are used (1) Course learning outcomes, (2) Class Climate surveys and (3) extensive Program Evaluation Surveys. (2) and (3) are released to students at the end of semester (for pre-trip program) or end of the trip (actual trip). Surveys are anonymous and are used for continuous improvement and annual faculty reporting. Departmental and College SLOs can also be used for assessment of student learning.

Results and Discussion

Course and Departmental Student Learning Outcomes

Students meet course outcomes that are as follows. 'At the end of the program, students will:

- I. Describe the most important differences between the cultures to which they traveled and that of the US.
- II. Understand how cultural, social, and regional differences affect agricultural production and technology systems and gauge the impact on agricultural applications.
- III. Have a period of immersion in foreign cultures offering them an opportunity to experience an international perspective.
- IV. Have an ability to function on multi-disciplinary and international teams.
- V. Have an ability to communicate effectively.
- VI. Have a recognition of the need for, and ability to engage in life-long learning.
- VII. Have a knowledge of contemporary issues.
- VIII. Have gained competencies in analysis and judgment, knowledge, communication, cultural adaptability, general knowledge, innovation, planning, teamwork, integrity, and professional impact.'

These SLOs are also complementary to the departmental SLOs for both technology and engineering programs in the ABE department. Table 2 summarizes enhancement of SLOs: The 11 learning outcomes (a through k) are expected of each graduate of an ABET-accredited technology degree program and are denoted by 'X'. Those marked by 'O' Student Learning Program outcomes and Competencies are addressed and added in the TSM 496 Ag Study Abroad trip to Poland. The current (X) 65 competencies are enhanced (XO) with 17 provided by this program (26%). In addition, 25 new (O) competencies are gained, a 38% increase to the new total of 90.

Summary of Program Evaluation Surveys from 2011 to 2014 trip courses are presented in Table 3. Results from the 2015 program are not available yet. Student responses are rated on the 1 (poor) to 5 (excellent) scale. Meeting course outcomes, Technology Program and College SLOs are also summarized. Data in Table 3 exemplifies the complexity of study abroad trips that include orientation and advertisement, program organization and coordination, and various impacts. Program orientation, organization and coordination has been addressed very well for the last 4 years. Students have consistently rated these above average. Program academic rigor has been above average. Program impacts (Q24-35) have also resulted in > 4 (out of 5) rating. Not surprisingly, students disagree with the statement "I could have learned the same material at my home institution" (Q11). Table 3 is also populated with the evidence of meeting and enriching SLOs at the course, departmental and college levels.

A summary of student's self-identified goals is presented in Table 4. Students have reported high levels of achievements in learning about culture, history, and agriculture. All this in a spirit of adventure and a sense of being part of something not attainable in a regular classroom setting. Students valued working with students in Poland and learning some language. Table 4 is also populated with the evidence of meeting and enriching SLOs at the course, departmental and college levels.

Table 2. Enhancement of Student Learning Outcomes: The following 11 learning outcomes are expected of each graduate of an ABET-accredited technology degree program and are denoted by 'X'. Those marked by 'O' Student Learning Program outcomes and Competencies are addressed and added in TSM 496 Ag Study Abroad course to Poland.

Program Outcome	Competency													
	A. Analysis and Judgment	B. Communication	C. Continuous Learning	D. Cultural Adaptability	E. Customer Focus	F. Engineering/Technical Knowledge	G. General Knowledge	H. Initiative	I. Innovation	J. Integrity	K. Planning	L. Professional Impact	M. Quality Orientation	N. Teamwork
a) an ability to apply knowledge of mathematics, science, and applied sciences	X		X			X		X						O
b) an ability to design and conduct experiments, as well as to analyze and interpret data	X	O	X		X	X		X	X		X		X	X
c) an ability to formulate or design a system, process or program to meet desired needs	X	X	X	X	X	X		X	X		X		X	X
d) an ability to function on multi-disciplinary teams	XO	XO	O	XO	X		XO	XO		XO	XO	XO	XO	XO
e) an ability to identify and solve applied science problems	X	X	X		X	X		X	X		O		X	X
f) an understanding of professional and ethical responsibility	X		X	X			X			X			X	O
g) an ability to communicate effectively		XO	O	O	X		X	XO	O			X		O
h) the broad education necessary to understand the impact of solutions in a global and societal context	XO	O	X	XO		X	XO	O			O	O		O
i) recognition of the need for, and an ability to engage in life-long learning	XO	O	X	O		O	O	X	O			O		O
j) a knowledge of contemporary issues	X	O	X	XO			X	O				O		O
k) an ability to use the techniques, skills, and modern scientific and technical tools necessary for professional practice	X		X	X		X		X					X	O

X – current TSM curriculum Student Learning Outcomes. O - additional Student Learning Outcomes stemming from TSM 496 Ag Study Abroad course.

Table 3. Summary of TSM 496B (travel course) Program Evaluation Surveys from 2011 to 2014 (results from the 2015 program are not available yet). Average student responses are recorded on the 1 (strongly disagree) to 5 (strongly agree) scale. Meeting course outcomes, Technology Program and College SLOs is also summarized.

		2011	2012	2013	2014	Course Goals	ABE SLOs	College SLOs
Q	Orientation/Advertisement							
1	I feel prepared after the pre-departure orientation section on health	4.5	4.6	4.7	5.0			
2	I feel prepared after the pre-departure orientation section on safety	4.5	4.8	4.6	5.0			
3	I feel prepared after the pre-departure orientation section on culture	4.4	4.2	4.1	4.0			
4	I feel prepared after the pre-departure orientation section on academics	4.4	4.6	4.6	4.4			
5	The "in-country" orientation program was helpful	4.0	3.7	4.7	4.4			
6	The advertising for this program was accurate	4.4	4.3	4.6	4.0			
	Program Organization / Coordination							
7	The travel course was as rigorous as regular ISU courses	3.0	3.3	3.7	3.1			
8	Course prerequisites (if any) were reasonable	3.0	4.3	5.0	4.8			
9	The group leaders were effective in teaching the travel course	4.8	4.4	4.7	4.3			
10	The travel course was intellectually challenging	4.1	4.0	3.5	3.7			
11	I could have learned the same material at my home institution	1.9	1.9	1.9	1.7	III		
12	Lecturers (if any) were enthusiastic and stimulating	4.1	4.1	4.5	4.6			
13	The course work requirements were adequately explained at the beginning	4.4	4.7	4.4	3.3			
14	My group leader(s) was responsible and understanding	4.6	5.0	5.0	4.6			
15	My group leader(s) did a good job advising me and others	4.5	5.0	5.0	4.7			
16	It was easy for me to communicate & have a dialogue with my group leader(s)	4.6	4.9	5.0	4.7	V		
17	The coordination & communication between my group leader(s) & hosts was effective	4.5	4.9	4.6	4.1			
18	Overall Instructor Effectiveness	n/a	5.0	4.9	4.3			
19	Logistical Arrangement – The lodging	4.4	4.6	4.2	4.3	III		
20	Logistical Arrangement – The food	4.5	4.7	4.6	4.7	III		
21	Logistical Arrangement – The transportation	4.4	4.6	4.0	4.6	III		
22	The program cost was reasonable	4.6	4.2	4.4	3.6			
23	The trip was a good investment for me	4.8	4.9	4.9	4.9	VIII		
	Program Impact							
24	Study abroad has made me more receptive to different ideas	4.5	4.4	4.7	4.6	I, II, III	d, i, j D	(5), (8)
25	I have gained better insight into myself	4.5	4.3	4.8	4.4	VI	i, g A, D, J	(5)
26	I have a greater sense of self-confidence due to living abroad	4.1	4.7	4.4	4.7	III	d, g, A, B, D, G, H, J, K	(3)
27	My interest in world events has increased	4.1	4.2	4.2	4.0	VI	i, j, C, D	(5), (8)
28	My experience abroad has changed my career plans	3.0	3.0	2.8	2.6	VIII	i C, H, K, L	
29	I understand the U.S. better	4.6	3.5	4.6	3.6	I, II, III, VII	i, j A, D, G	(8)
30	My ability to adapt to new situations has increased	4.4	4.8	4.6	4.4	III, IV	h D, N	(1), (3)
31	The program enabled me to broaden my thoughts about others' customs & beliefs	3.9	4.4	4.7	4.6	III, VIII	d, h, j A, C, D, G, J, N	(6), (8)
32	The program structure facilitated interaction with the local culture	4.6	4.4	4.8	4.7	III, IV	d, g, j B, D	(8)
33	The program is valuable in exposing U.S. students to other cultures	4.9	4.6	4.9	4.7	III, IV	d, g, j B, C, D, N	(8)
34	How satisfied are you with your study abroad experience?	4.8	4.6	4.9	4.9	VIII		(8)
35	Overall student learning	n/a	4.3	4.8	4.6		d, i, j, k A-D, H-N	(5), (8)
36	Overall instructor/leader evaluation	n/a	5.0*	4.9*	4.1			
	# of students responding	n=8	n=9	n=9	n=7			
	Response rate (%)	100%	100%	90%	100%			
	Note: *Response to Overall Instructor Effectiveness. question not asked directly							

Table 4. Summary of attainment of self-identified students' goals reported in Program Evaluation Surveys from 2011 to 2014.

	Main student learning goals	2011	2012	2013	2014	Couse Goals	ABE SLOs	College SLOs
1	Learn about other cultures, history, develop culturally, experience music, gain perspective on the world and US, discover similarities and differences	7	11	12	10	I, II, III, VII, VIII	h, i, j, k D, G	(1), (8) [1-4]
2	Learn and understand agriculture, machinery, regulations, procedures, animal production systems in Poland, Europe, Iowa, and US	11	5	7	3	II, VI, VII, VIII	h, i, j, k C, G, L	(7), (8) [2-4]
3	Venture out, explore new things, try new food, get out of comfort zone, travel internationally, have fun, grow as a person, have unforgettable experience that no lecture ever could, get a sense of direction in career	6	6	7	5	III, VI, VIII	h, i C, D, H, K, L	(1),(4), (5), (8) [1-4]
4	Work on project with foreign students, meet new people, make friends, visit family, be a good American ambassador	1	5	5	7	III, IV, V, VIII	h, i, j, k B,D,H,N	(1), (3), (8) [1-4]
5	Learn Polish	1	3	3	3	IV, V, VIII	d, g, B,C, D,L,N	(1), (8) [5]
	# of students responding	n=8	n=9	n=9	n=7			
	Response rate (%)	100%	100%	90%	100%			

This program forces students to think about their career choices. There were no significant changes in career as evidenced in Table 5. However, students reported that the trip broadened their range of options to consider.

Table 5. Examples of responses to Q28 'My experience abroad has changed my career plans' reported in Program Evaluation Surveys from 2011 to 2014.

	Responses to Q28: My experience abroad has changed my career plans
1	I am going to add classes on animal housing.
2	It would be great to have a job in Poland. I know now that working abroad is definitely an option. Maybe I can use this experience to give me confidence in working abroad.
3	Would now consider graduate school abroad.
4	Made me look at different ways to diversify my farm operation.
5	Biogas.
6	I still want to do mechanical engineering, maybe work with environment.
7	I want to have a career that allows me to experience various agricultural practices and procedures.
8	Learned more which will affect my future careers.

Students gain appreciation for the U.S. as shown in Table 6, i.e., examples of responses to "I understand the U.S. better" query. Table 6 is also populated with the evidence of meeting and enriching SLOs at the course, departmental and college levels.

Table 6. Examples of responses to Q29 'I understand the U.S. better' reported in Program Evaluation Surveys from 2011 to 2014.

	Responses to Q29: I understand the the U.S. better	Couse Goals	ABE SLOs	College SLOs
1	Traveling a to a foreign country and listening to what the citizen of that country say about the way the U.S. conducts business, makes you see the U.S. in a different light.	I, II, III, VII, VIII	B-D, G	(8)
2	The U.S. is very focused on money and Poland is not. It doesn't make me happy. The U.S. puts a lot of emphasis on money and moving forward.	I, II, III, VIII	D	(6)
3	I understand farming and all aspects related to it a lot better than I did. I better understand how Europe and the U.S. rely on each other agriculturally. I understand and appreciate our use of GMOs.	I, II, III, VII, VIII	A,D,G	(5), (7), (8)
4	Learned about U.S. and was able to compare. I understand what the differences are and appreciate that. We don't always do things best.	I, II, III	A,C,D	(5), (8)
5	I take for granted our freedom mere readily. Yes! I will never take it for granted again. Appreciate U.S. customs and things we take for granted. Very grateful for what I have. Every country is different and you have to respect all of them.	I, II, VIII	C,D,G	(8)

Finally, students themselves self-report specific skills developed as ae result of this program (Table 7). Not surprisingly, skills developed in communication, leadership, interpersonal/teamwork area, adaptability, acceptance, problem solving, personal development, and technical knowledge are also consistent with the course, departmental and college SLOs.

Table 7. Examples of responses to ‘What specific skills did you developed as a result of this program?’ reported in Program Evaluation Surveys from 2011 to 2014.

	What specific skills did you develop as a result of this program?’	Couse Goals	ABE SLOs	College SLOs
1	Communication. Leadership. Interpersonal skills. Adaptability. Patience. Confidence. Compromise. Acceptance. How to respect differences. Problem solving. Personal development. I developed the skill to speak better to an audience as well as learn how to communicate in other ways other than language.	II, III, IV, V, VI, VIII	A-D, G,H,N	(1), (3), (5), (8)
2	Knowledge of many different livestock systems. [Knowledge of] environmentally friendly technology. Knowledge of different farming practices. What they did with manure to use it later on for energy, the process of how it works. I am more aware to real life application of my major.	II, VII, VIII	C, F,G	(1), (5), (8)
3	Learned some Polish and German.	III, V, VI	B, D	(8)
4	I did a whole project with a Polish student. I learned how to be more flexible in working with others. Better communication skills with someone whose first language isn’t English. Not be afraid to go abroad.	III, IV, V, VIII	B, D, H, K, N	(1-3), (8)

Conclusions

The Technology Travel Course (TSM 496) to Poland is also an excellent opportunity for students to learn/compare technology concepts and applications in an international context. The course has been offered yearly since 2011 and served 48 students from several majors in the Agriculture & Life Sciences and Engineering colleges. SLOs are measured with the program surveys. Currently 65 departmental SLOs/competencies are enhanced with 17 provided by this program (26%). In addition, 25 new competencies are gained, a 38% increase to the new total of 90. Data analysis of the Program Evaluation Surveys show high degree of developing new skills, meeting and enhancement of class goals, departmental and college SLOs. Students highly rate this learning and often list it as a highlight of college their career thus far.

Acknowledgement

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Appendix

Example of TSM 496B Final Program and Agenda

TSM 496B – Ag Study Abroad trip course - FINAL SCHEDULE – Poland – Lithuania 2015

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Dr. **Dorota Witkowska**, UWM Olsztyn, +48 -----.

Sa, May 9	<ul style="list-style-type: none"> - 11 AM departure by ISU van to DSM. Meeting place – west side parking near Sukup Hall. - United Airlines departure from DSM 2:25 PM, picking up luggage and transfer to Terminal 5, LOT direct flight via Boeing 878 Dreamliner to Warsaw departing 9:25 PM.
Su, May 10	<ul style="list-style-type: none"> - 13:25 arriving at Warsaw Chopin International Airport. Passport control to Schengen (EU) countries. - Shuttle train to the city/hotel. Checking into Premiere Classe Varsovie in Warsaw (near Warsaw Ochota transport hub). Meeting up with Soufiane Talmoust (arrived the day before). - Welcome and orientation (ATM withdrawals, purchasing SIM cards, mobile internet USB modems, logistics of the use of public transportation in Warsaw). - Picking up reserved group train tickets at Warsaw Central station. - weather depending either Royal Gardens and Palace (Lazienki) and/or evening tour of downtown
M, May 11	<ul style="list-style-type: none"> - 8 AM breakfast in hotel. - 9 AM departure for Warsaw Uprising Museum. (www.1944.pl) - 10:20 AM English guided tour. - 12:30 lunch and transfer to the Museum of History of Polish Jews (www.polin.pl) - 14:00 English guided tour - 16:00 return to hotel. Meeting student 1 and student 2 (arriving on this day) - Dinner and evening in Old Town (UNESCO World Heritage List)
T, May 12	<ul style="list-style-type: none"> - 6 AM – breakfast in hotel. - 7 AM departure by bus to Grojec (~ 1.5 hr) to Mr. Lukasz Gorzynski (+48 -----) farm (apples, cherries, gooseberries). Tour of fruit processing and fruit storage facilities. - 12 noon lunch - 13:45 arrival Warsaw University of Life Sciences – SGGW (Department of (Ag) Production Engineering ~ corner of Nowoursynowska Str. & Ciszewskiego Str.– Dr. Jędrzej Trajer. Meeting with students and faculty. - Dinner and evening in the Old Town – Warsaw or Royal Palace Gardens in Wilanow (weather permitting)
W, May 13	<ul style="list-style-type: none"> - 7 AM breakfast in hotel. - Checking out at 8 AM. - Transfer of luggage to the Warsaw Central Rail Station. - tentatively Royal Castle (10-12 noon) or Maria Skłodowska Curie Museum (10-11 AM) - 12:00 lunch - 13:00-14:00 Frederyk Chopin’s Museum. - 16:15 collecting luggage and transfer to platform. - 16:45 Departure for Olsztyn from Warsaw Central. - Arrival in Olsztyn at 19:34. - Checking in the student housing hotel for the University of Warmia and Mazury – UWM in Olsztyn-Kortowo - Welcome and orientation (meeting your project partners)
Th, May 14	<ul style="list-style-type: none"> - University of Warmia and Mazury - UWM. Meeting with students and faculty: - 9.00 – 10.00 meeting with Dean and Students - 10.00 – 11.00 visits to labs and or taking part in parade of students (Dep. of Animal Genetics) - 11.00 – 12.00 visits to labs and or taking part in parade of students (Dep. of Animal Nutrition) - 12.00 – 13.00 lunch - 13.00 – 15.00 Bałdy (Departure of Poultry Science – turkey research farm) - 15.00 – 20.00 scheduled project time - evening in Kortowo (Kortowiada – Student Festival)
F, May 15	<ul style="list-style-type: none"> - 9.00 – 10.00 The Aquaculture Centre, UWM - 11.00 – 13.00 visit on-campus research sites (Kortowo III) (sheep, goats, meat processing, horses) - 13.00 – 14.00 lunch - 14.00 - 17.00 Polish-American Workshop with UWM - student presentations and competition - free evening (Kortowiada)

Sa, May 16	<ul style="list-style-type: none"> - 8.30 – 10.30 Agroma Olsztyn (agricultural machinery dealer) - 10.30 – 15.00 visit to Wolf's Lair Bunker Museum - Hitler's Headquarters (100 km) - 15.00 – 16.00 lunch - 17.00 – 19.00 visit to "Land of horses" (k. Wydminy) (70 km) - 19.00 – 20.00 back to Olsztyn (130 km)
Su, May 17	<ul style="list-style-type: none"> - 9.00 – 18.00 cultural trip to Castle of the Teutonic Order in Malbork, UNESCO World Heritage Site, lunch (2 × 140 km) - Free time (old town in Olsztyn: castle, basilica)
M, May 18	<ul style="list-style-type: none"> - 7:45 AM Charter bus from Olsztyn, Poland to Vilnius, Lithuania (~7 h). Contact – Wieslaw Aptacy (Trans-Turist) http://trans-turist.pl/tabor/ (Temsza Opalin 8 bus), mobile ----- or Kamil -----. - Lunch on-route. - Arrival at Ecotel Hotel (8 Slucko Str.) in Vilnius downtown. - Dinner and visit of Old Town (UNESCO World Heritage Site).
T, May 19	<ul style="list-style-type: none"> - 7 AM breakfast at hotel - 8 AM departure via charter bus to Kinze plant. - Visit to Kinze Manufacturing plant near Vilnius (Violeta Baranovskienė, +370 620 30554, Virginijus Jurkstas) - Vilnius City Tour with English speaking guide (contact + 370 -----) http://www.vilniuscitytour.com/ - Dinner, free time.
W, May 20	<ul style="list-style-type: none"> - 7 AM breakfast at hotel - 8.00-9.30 - Trip to Kaunas (Dr. Arvydas Povilaitis will meet us on the way to ASU University) - 9.30-10.00 - Trip to Išlaužas - 10.00-12.00 - Visiting "Išlaužas fish" breeding farm - 12-00-13.00 - Lunch in Išlaužas - 13.00-14.00 - Travel to Alytus town - 14.00-16.00 - Visiting JSC "Traidenis" production of water treatment equipment and fish breeding - 16.00 -17.00 Trip to Trakai Castle - 17.00-19.00 Visiting Trakai Castle and old town - 19.00-20.00 Back trip to Vilnius - Dinner, free time.
Th, May 21	<ul style="list-style-type: none"> - 4:45 AM checkout from hotel. - 5 AM departure from hotel and transport via charter bus to the Airport. - 6:40 AM departure from Vilnius Airport for Warsaw and then connecting flight to Wroclaw (arrival 8:30 AM). - Checking in at student housing (DS Polowka, Pauschta Str.) - 10:30 lunch - 12:00 departure for Cargill - 13:00 Cargill ethanol and gluten plant tour. - Centennial Hall (UNESCO World Heritage Site) (time permitting) - Barbeque/dinner, Multimedia Fountain show at 9 PM.
F, May 22	<ul style="list-style-type: none"> - 7:30 – departure for 3M plant - 8:00 - 08:30 - 3M & ISU introduction, Customer Technical Center (CTC) - Kowalska Str.143, Wroclaw (Natalia Lisiecka. 3M Poland Manufacturing Marketing & Public Affairs Communications Coordinator, nlisiecka@mmm.com) - 08:30 - 09:30 - CTC Visit, CTC - 09:30 - 09:45 - Break/transfer to plant (walking distance) - 09:45 - 11:15 - PSD Plant Tour, PSD Plant (Personal Safety Division) - 11:15 - 11:45 - Wrap up discussion, CBC - 11:45 - 12:30 - Lunch at 3M site - 12:30 Departure - 14:00 - 16:00 Scheduled project time I - Dinner, evening visit to Old Town in Wroclaw, Aula Leopoldinum, gnomes, Dietrich Bonhoeffer Memorial, Old Slaughterhouses.
Sa, May 23	<ul style="list-style-type: none"> - 7:30 Departure from DS Polowka - 9:00 Peace Church - The largest wooden church in Europe on the UNESCO World Heritage List in Swidnica - 10:30 Departure to Kudowa Zdroj - 12:00 - 13:00 Visit in The Skull Chapel, Czermna - 13:30 - 14:30 Lunch break - 15:00 checking in at hotel near Szczeliniec (Karlo) - 16:00 - 20:00 (weather permitting) hike to the top of Szczeliniec mountain - 20:30 – (weather permitting) campfire, barbeque, songs.
Su, May 24	<ul style="list-style-type: none"> - 8:00 Breakfast

	<ul style="list-style-type: none"> - 8:30 Departure for Wroclaw - 10:30 - 13:00 free time - 13:00 Lunch - 15:00 Panorama Raclawicka - 17:00 - 20:00 Opera "Carmen" - Dinner (Old Town)
M, May 25	<ul style="list-style-type: none"> - 9:00 - 11:00 Scheduled project time II - 12:00 - 14:00 Meeting at the main building of WUELS, briefing with Prof. Alina Wieliczko, head of the International Relations Office (for Jacek). Visit to the Veterinary Medicine with Dr. Robert Kaczmarczyk (for students). - 14:15 Lunch break (Cynamon restaurant) - 15:30 The Botanical Garden of The University of Wroclaw, Cathedral. - Dinner, free time
T, May 26	<ul style="list-style-type: none"> - 9:00 - 11:00 Polish-American Workshop with WUELS – student presentations and competition. - 11:00 - 12:00 Lunch Break. - 12:00 Tentative (field trip to apiary genetic research farm). Backup plan - Visit at the Faculty of Biology and Animal Science labs. - Evening farewell dinner in the Old Town.
W, May 27	<ul style="list-style-type: none"> - 6:30 AM checking out from student housing. - 6:45 AM departure for Wroclaw Central Station. - 7:47 AM departure by to Krakow Main Station. Arrival at Krakow Main Station at 11:20 AM. - check-in to "Sun & Snow Novum" apartments (Rakowicka 20A Str., walking distance from Krakow Main) - 13:00 Lunch - 14:30 PM departure for Museum. - Tour of Schindler's Factory Museum, 3:30 to 5:30 PM - Jewish Quarter, - Dinner, free time.
Th, May 28	<ul style="list-style-type: none"> - 7 AM breakfast - 8 AM departure from hotel - Old Town (UNESCO World Heritage Site, Barbican, Main Square, 9:10 AM Basilica Tower, 10-11 AM Jagiellonian University – Collegium Maius, 11:30 AM St. Mary's Basilica, Cloth Hall – great place for souvenirs from Poland) - 12:00 lunch - 13:30 departure for Oswiecim via bus. - 16:00 English tour of German Nazi Concentration Camp and Museum in Auschwitz - Evening return to Krakow, light dinner.
F, May 29	<ul style="list-style-type: none"> - 8 AM Breakfast - 8:45 AM checkout - 9:00 transfer of luggage to Krakow Main Station. - 9:30 to 16:00 TBD (Kings Castle, cathedral, lunch, or Wieliczka Salt Mine, both listed on UNESCO World Heritage Sites) - 16:00 Dinner - 17:15 collecting luggage, transfer to platform. - 18:03 departure on Express Intercity train departure for Warsaw - Filling in Ag Study Abroad questionnaire/feedback (7 pages). Linda Schott will collect and hand-deliver to Ag Study Abroad for processing. Jacek will not see the compiled feedback till after grades are posted. - 20:30 Arrival at Warsaw Central Station - Checking in the Premiere Classe Varsovie in Warsaw (near Warsaw Ochota transport hub). - Light snacks/dinner/free time.
Sa, May 30	<ul style="list-style-type: none"> - Breakfast in hotel. Free time. - 12 noon checkout, shuttle to the airport. - 16:40 departure from the Chopin International Airport in Warsaw for Chicago (LOT Polish Airlines) - Evening arrival at DSM or other final destinations.

Notes: Meals and hydration are very important. Thus, please plan on bringing a small backpack with water bottle, snacks, wind-proof layer of clothing, and travel-size umbrella with you. Be proactive on packing the night before. Team effort is needed to get some staple items for breakfasts (e.g., milk, cereal, coffee, tea, energy/snack bars, fruits) at places where we will stay longer and breakfasts are not provided (e.g., student housing). These you can take on daily trips. Lunches and dinners are planned on all days. Some flexibility on time and location is built in the program.

Important reminder regarding Class BBL Deliverables:

1. Final (merged PPT with your Polish university project partners) – June 15, 2015.
2. Post-trip paper – June 15, 2015.
3. Daily journaling during trip – confirmation due May 31, 2015.
4. Video journaling – May 31, 2015.
5. Responding to TSM 496B Class Climate survey to be released on May 30.