

SEEC Data Brief Student Enrollment and Engagement through Connections (SEEC)

SEEC Engineering Transfer Student Profile

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Issue 1

IOWA STATE UNIVERSITY

DMACC
DES MOINES AREA
COMMUNITY COLLEGE



NATIONAL SCIENCE FOUNDATION
STEM Talent Expansion Program (STEP)

Grant No. 0653236



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The SEEC Engineering Transfer Student Profile was designed by Donna Le (B.F.A., ISU 2009)

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INTRODUCTION

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Community colleges play a critical role in educating future scientists and engineers as well as serving as pathways for women and underrepresented populations to pursue STEM degrees. In 2007 the College of Engineering at Iowa State University (ISU) in collaboration with Des Moines Area Community College (DMACC) received a five-year National Science Foundation grant titled *Student Enrollment and Engagement through Connections (SEEC)*. The purpose of the project is to increase the number of students graduating with a bachelor's degree in engineering at ISU and the number of students in STEM areas of study at DMACC.

Table 1 highlights the New Transfer Students to the College of Engineering in Summer/Fall 2007, 2008, and 2009 at ISU. Among Iowa Community Colleges, a significant number of engineering students transferred from Des Moines Area Community College. In Summer/Fall 2007, 2008, and 2009, 15%, 20%, and 19% transferred from DMACC, respectively. Overall, more than half of all engineering transfer students at ISU transferred from Iowa Community Colleges (52%, 56%, and 54%, respectively).

The purpose of the SEEC Data Brief is to collect and report systematic data about community college transfer student performance and experiences in the College of Engineering at ISU. The goal is to create a culture of evidence in the College of Engineering and to use the data to inform practice, policy and research.

Table 1

New Transfer Students to the College of Engineering, Summer/Fall 2007, 2008, 2009											
Iowa State University											
			American Indian	African American	Asian American	Caucasian	Hispanic	Multi-racial*	Inter-national	Unknown	Total
2007	Female	Male									
Des Moines Area Community College		31		2	2	23		-		4	31
Other Iowa Two-Year Transfer	4	72		2		70		-	2	2	76
Out of State Two-Year Transfer	4	22		1	1	12		-	11	1	26
Four-Year Transfers	8	65		1	1	40		-	27	4	73
								-			
Total	16	190		6	4	145		-	40	11	206
2008	Female	Male	American Indian	African American	Asian American	Caucasian	Hispanic	Multi-racial*	Inter-national	Unknown	Total
Des Moines Area Community College	7	35	1	2	2	34		-	1	2	42
Other Iowa Two-Year Transfer	3	76		1	1	71		-	1	5	79
Out of State Two-Year Transfer	4	21		1	1	10	1	-	11	1	25
Four-Year Transfers	12	57			2	37	2	-	25	3	69
								-			
Total	26	189	1	4	6	152	3	-	38	11	215
2009	Female	Male	American Indian	African American	Asian American	Caucasian	Hispanic	Multi-racial*	Inter-national	Unknown	Total
Des Moines Area Community College	3	44	1	5	2	34	1	1	2	1	47
Other Iowa Two-Year Transfer	4	84		1	1	80		1		5	88
Out of State Two-Year Transfer	5	21		4	1	14			7		26
Four-Year Transfers	20	71		3	2	35	1	1	45	4	91
Total	32	220	1	13	6	163	2	3	54	10	252

*Note: Multi-racial was not a category prior to Fall 09

Source: Office of the Registrar, Iowa State University
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TRANSFER STUDENT QUESTIONNAIRE

Iowa Community College Transfer Institution

In spring of 2009, the Office of Community College Research and Policy (OCCRP) conducted a study of transfer students from Iowa community colleges at Iowa State University (ISU) using the Laanan-Transfer Students' Questionnaire (L-TSQ)© on-line survey. A sample of this study (n=2811) included transfer students in fall 2006, spring 2007, fall 2007, spring 2008, fall 2008, and spring 2009 identified by the Office of the Registrar. The response rate was approximately 31% (n=858).

The following section presents data from transfer students in Engineering majors (as of fall 2009). The students transferring into Engineering majors represent approximately 10.4% (n=89) of the total respondents.

Age	%
19-22	55.1%
23-27	34.4%
28-35	7.9%
40-45	2.3%
Gender	%
Female	2.2%
Male	97.8%

What is the highest academic degree you intend to obtain?

	Any College	ISU
Bachelor's (BA or BS)	56.8%	80.5%
Master's (MA or MS)	33.0%	17.2%
Doctorate (Ph.D. or Ed.D)	10.2%	2.3%

Engineering Majors n=89

	%
*as of Fall 2009	
Agricultural Engineering (A E)	3.4%
Aerospace Engineering (AER E)	2.2%
Civil Engineering (C E)	9.0%
Chemical Engineering (CH E)	5.6%
Construction Engineering (CON E)	5.6%
Computer Engineering (CPR E)	9.0%
Electrical Engineering (E E)	15.7%
Engineering (ENGR)	2.2%
Industrial Engineering (I E)	7.9%
Mechanical Engineering (M E)	33.7%
Materials Engineering (MAT E)	2.2%
Systems Engineering (S E)	3.4%

Colleges	%
Clinton Community College	3.4%
Des Moines Area Community College-Ankeny	22.5%
Des Moines Area Community College-Boone	4.5%
Des Moines Area Community College-Carroll	1.1%
Des Moines Area Community College-Urban	1.1%
Ellsworth Community College	1.1%
Hawkeye Community College	3.4%
Indian Hills Community College-Ottumwa	2.2%
Iowa Central Community College-Fort Dodge	3.4%
Iowa Lakes Community College-Estherville	2.2%
Iowa Western Community College-Clarinda	2.2%
Iowa Western Community College-Council Bluffs	5.6%
Kirkwood Community College	23.6%
Marshalltown Community College	2.2%
Muscatine Community College	1.1%
North Iowa Area Community College	5.6%
Scott Community College	4.5%
Southeastern Community College-Burlington	4.5%
Southwestern Community College	2.2%
Western Iowa Tech Community College	3.4%

Transfer Semester GPA

GPA	%
2.00-2.99	37.1%
3.00-3.49	36.5%
3.50-4.00	25.4%

Transfer Semester Hours

Transfer hours	%
20-40 Hours	26.6%
41-60 Hours	21.0%
61-80 Hours	51.5%
81 or more	1.1%

Ethnicity

	%
White	76.4%
Non-white	23.6%

COMMUNITY COLLEGE EXPERIENCES

About how many hours a week did you usually spend on the community college campus, not counting time attending classes?

None	14.5%
1 to 3	34.9%
4 to 6	19.3%
7 to 9	10.8%
10 to 12	3.6%
More than 12	16.9%

About how many hours a week did you usually spend studying or preparing for classes?

1 to 5	40.2%
6 to 10	30.5%
11 to 15	9.8%
16 to 20	11.0%
More than 20	8.5%

During your time at the community college, about how many hours a week did you usually spend working on a job for pay?

None, I didn't have a job	13.3%
1 to 10	6.0%
11 to 15	12.0%
16 to 20	22.9%
21 to 30	22.9%
More than 30	22.9%

What type of degree, diploma or certificate did you receive? If multiple, please list in 'other'.

None	65.1%
Associate of Arts	10.8%
Associate of Science	13.3%
Associate of Applied Science	3.6%
Diploma	1.2%
Certificate	1.2%
Other	4.8%

GENERAL COURSES

**Somewhat Agree -
Strongly Agree**

The courses developed my critical and analytical thinking.	85.3%
The courses demanded intensive writing assignments and projects.	55.4%
Overall, the courses were intellectually challenging.	73.5%
The courses prepared me for the academic standards at ISU.	61.4%
The courses prepared me for my major at ISU.	59.7%
The courses required extensive reading and writing.	39.8%

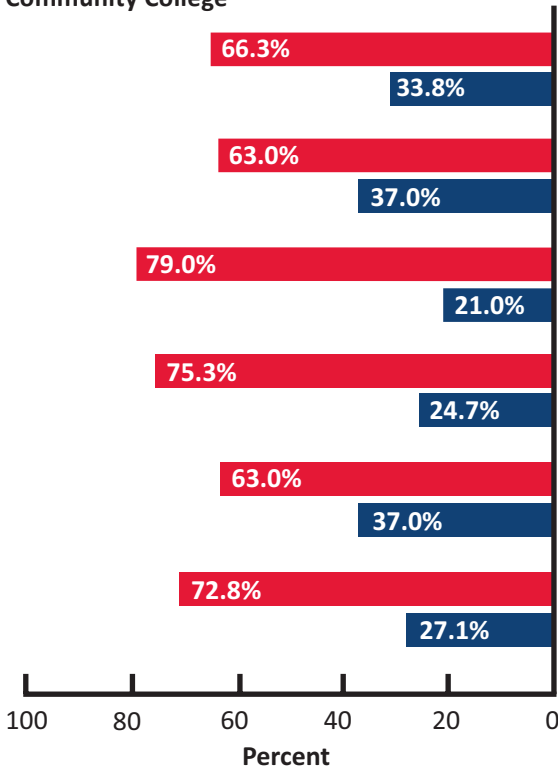
ACADEMIC ADVISING/COUNSELING SERVICES

**Somewhat Agree -
Strongly Agree**

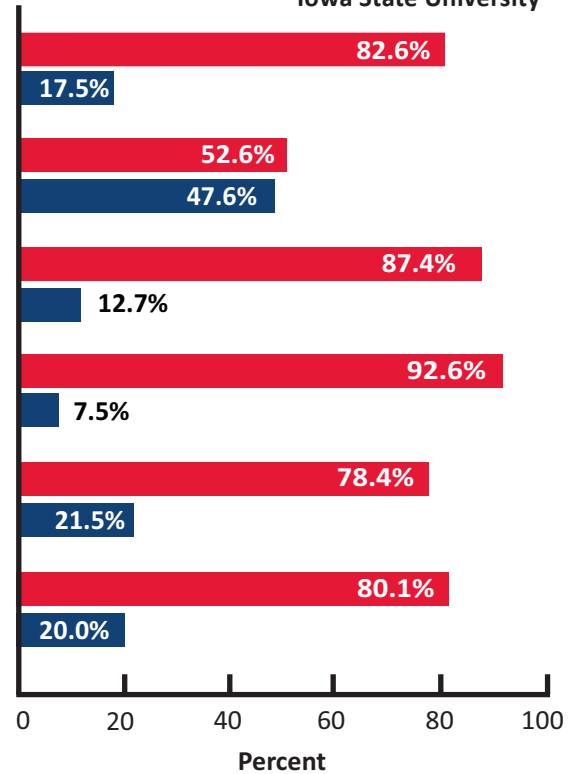
I consulted with academic advisors/counselors regarding transfer.	69.9%
Information received from academic advisors/counselors was helpful in the transfer process.	62.2%
I met with academic advisors/counselors on a regular basis.	37.8%
I talked with an advisor/counselor about courses to take, requirements, education plans.	65.0%
I discussed my plans for transferring to a four-year college or university with an academic advisor/counselor.	68.6%
Advisors/Counselors identified courses needed to meet the general education/major requirements of a four-year college or university I was interested in attending.	60.2%

TSQ: COURSE LEARNING

Community College



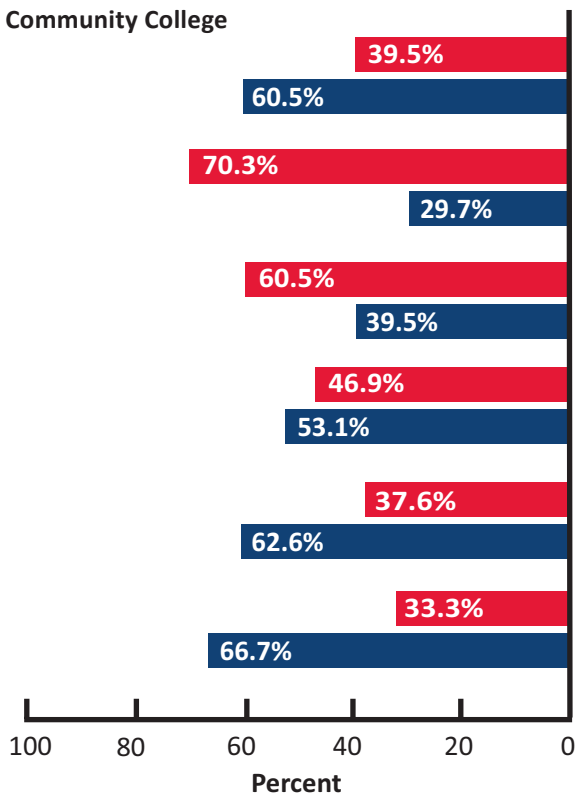
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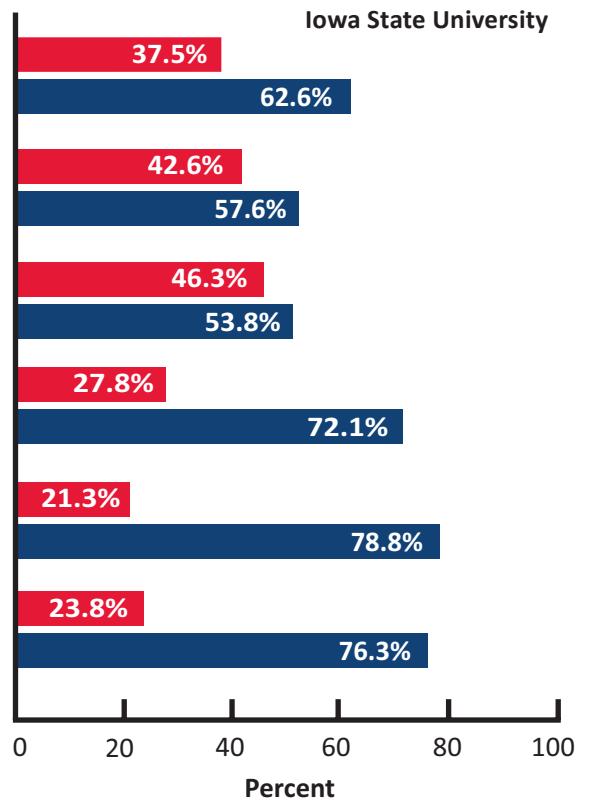
■ Often - Very Often ■ Never - Occasionally

TSQ: EXPERIENCES WITH FACULTY

Community College



Iowa State University



■ Often - Very Often ■ Never - Occasionally

TRANSFER PROCESS

	Somewhat Agree - Strongly Agree
I researched various aspects of ISU to get a better understanding of the environment and academic expectations.	68.3%
I knew what to expect at ISU in terms of academics.	64.7%
I visited the ISU campus to learn where offices and departments were located.	68.3%
I spoke to academic counselors at ISU about transferring and major requirements.	79.3%
I visited the admission office at ISU.	65.8%
I spoke to former community college transfer students to gain insight about their adjustment experiences.	33.3%

LEARNING AND STUDY SKILLS

To what extent do you agree or disagree that your academic experience at your community college gave you the skills you needed to prepare for the standards and academic rigor at ISU?

	Somewhat Agree - Strongly Agree
Computer skills	50.6%
Mathematical skills	77.7%
Note taking skills	50.6%
Problem solving skills	67.9%
Reading skills	56.8%
Research skills	52.6%
Speaking and oral presentations	60.5%
Test taking skills	51.8%
Time management skills	44.4%
Writing skills	61.3%

ISU EXPERIENCES

About how many hours a week do you usually spend working on a job for pay?

None, I don't have a job	39.5%
1 to 10	21.0%
11 to 15	14.8%
16 to 20	19.8%
21 to 30	3.7%
More than 30	1.2%

What is the most important reason for attending ISU?

To obtain a bachelor's degree	64.6%
To gain skills necessary to enter a new job or occupation	26.8%
To pursue graduate or professional school	6.1%
To satisfy a personal interest (cultural, social)	2.4%

What are the reasons that might have influenced your decision to attend ISU?

	Important - Very Important
ISU has a very good academic reputation	92.6%
ISU has a very good reputation for its social activities	25.9%
I was offered financial assistance	37.0%
ISU has affordable tuition	58.0%
Academic counselor(s) at my previous college advised me	22.2%
A friend suggested attending	33.3%
An ISU representative recruited me	8.8%
ISU graduates gain admission to top graduate/professional schools	32.1%
ISU graduates get good jobs	78.8%
ISU ranking in national magazines	50.7%
Parents recommended that I attend ISU	33.8%
My brother(s)/sister(s) attended ISU	22.8%
Convenience and location	69.6%
Size of ISU	40.5%
Cost of ISU	64.6%

ISU EXPERIENCES (CONT.)

Did you attend an ISU sponsored transfer student orientation?

Yes	54.9%
No	45.1%

If answered yes to the question above, how helpful was the orientation program in facilitating your transition to ISU?

Very helpful	19.1%
Somewhat helpful	53.2%
Somewhat unhelpful	17.0%
Very unhelpful	10.6%

College Satisfaction

	Satisfied - Very Satisfied
Sense of belonging to ISU	86.3%
Decision to transfer to ISU	96.3%
Overall quality of instruction	87.5%
Sense of community on campus	81.3%
Academic advising	78.5%
Career counseling and advising	70.1%
Student housing	51.9%
Courses in your major field	88.8%
Financial aid services	73.4%
Amount of contact with faculty	76.3%
Opportunities for community service	68.8%
Job placement services for students	71.3%
Class size	72.5%
Interaction with other students	85.1%
Ethnic/racial diversity of the faculty	78.8%
Leadership opportunities	88.6%
Overall college experience	95.1%

Perceptions of ISU

Somewhat Agree - Strongly Agree

ISU faculty are easy to approach.	72.5%
ISU faculty tend to be accessible to students.	75.1%
It was difficult learning the 'red tape' when I started.	41.0%
Because I am a 'community college transfer', most students tend to underestimate my abilities.	33.0%
Because I am a community college transfer, most faculty tend to underestimate my abilities.	25.3%
There is a stigma at ISU among students for having started at a community college.	38.0%
Generally, students are more concerned about 'getting the grade' instead of learning the material.	95.1%
Many students feel like they do not 'fit in' on this campus.	35.0%
Professors are strongly interested in the academic development of undergraduates.	63.8%
Most students are treated like a 'number'.	65.0%
Student services are responsive to student needs.	76.6%
If students expect to benefit from what ISU has to offer, they have to take the initiative.	92.6%
I feel the courses I have taken at ISU have been interesting and worthwhile.	91.1%
ISU is an intellectually stimulating and often exciting place to be.	90.0%
I would recommend to other transfer students to come to ISU.	91.1%
If I could start over again, I still would go to ISU.	91.0%

Adjustment Process

	Somewhat Agree - Strongly Agree
Adjusting to the academic standards or expectations at ISU has been easy.	53.8%
Adjusting to the social environment at ISU has been easy.	66.3%
I often feel (felt) overwhelmed by the size of the student body.	35.1%
Upon transferring, I felt alienated at ISU.	31.3%
I am very involved with social activities at ISU.	43.1%
I am meeting as many people and making as many friends as I would like at ISU.	60.1%
The large classes intimidate me.	28.8%
It is easy to find my way around campus.	86.3%
My level of stress increased when I started ISU.	77.5%
I experienced a dip in grades (GPA) during my first semester at ISU.	58.8%
It is easy to make friends at ISU.	77.5%
I feel comfortable spending time with friends that I made at the community college I attended.	78.8%
I feel comfortable making friends with transfer students than non-transfers.	26.6%
There is a sense of competition between/among students at ISU that is not found in community colleges.	50.6%

Fall 2009 Semester ISU Credit Hours

0-5	5.7%
6-10	14.6%
11-15	63.5%
16-20	15.8%

Fall 2009 Semester ISU GPA

0-1.99	14.4%
2.00-2.99	32.4%
3.00-3.49	25.7%
3.50-4.00	25.7%

OPEN-ENDED QUESTIONS FROM TSQ

QUESTION #1

What factors helped you adjust to ISU? Please explain what factors contributed to your successful transfer (or unsuccessful transfer) to ISU. Feel free to include factors at both your community college and ISU.

Being involved in learning communities, dormitory life, campus activities and organizations and the student orientation

"Learning Communities, activities sponsored by my major, intramurals."

"Learning Community for transfer students was very helpful."

"Living with another transfer student helped me adjust to ISU."

"Just going to class and getting involved in some of the organizations."

"Social interaction."

"Social groups"

"Orientation programs helped."

Making friends

"Having friends from my community college down here helped me adjust and making new friends helped."

"Having friends that have transferred to ISU in the same major as I am really helped me to be prepared for what I was getting into."

"Meeting new people in the dorms helped me adjust the fastest."

"Making friends within class."

Family and friends

"Family and friends that currently attend ISU were helpful in making the transition into the school and town."

"My roommate that I graduated high school with came straight here has helped me blend in much faster and smoother than I think it would've naturally."

"I had a firm background of what life at ISU was like because of family members going here."

OPEN-ENDED QUESTIONS FROM TSQ (CONT.)

Community college and ISU resources

“Group projects helped me to meet new people in my major.”

“Staff and faculty of all departments were very helpful which led me to a successful transfer.”

“The Application Partnership Program (APP) program helped the most.”

“Academic counselor.”

“ISU website resources.”

“Offered a few more classes in the engineering field.”

“Made classes more rigorous.”

“More applicable course work .”

“Schedule me more courses to transfer so I didn’t feel like I was wasting my time by taking courses that wouldn’t apply to my ISU degree.”

“I wish I would’ve known that some of the classes I took at DMACC wouldn’t have transferred here before I took them. The people I talked to at DMACC didn’t seem to know much. Also, the classes could’ve been a little faster paced or harder.”

“Made sure the classes transferred.”

“Have more classes that transferred.”

QUESTION #2

What might the community college have done to enhance your success or ease the transition to ISU?

Nothing, needs were met

“Nothing. They did all they could. The rest is up to you .“

“Nothing. It was easy enough.”

“Everything went smoothly.”

“Nothing, good already.”

“Nothing NIACC was great!!!”

Advisement

“I had counselors that knew what they were doing.”

“My advisors advised me correctly.”

“Better advisors, with more knowledge of how classes would transfer and what classes I should take at community college.”

“Better advising - the advisers had no clue what classes I needed to take, and some classes I took at the community college didn’t transfer into my major.”

Provide more rigorous and transferable classes

“Make classes harder or grade harsher because down here it’s all or nothing and community college gave more partial credit.”

“Make the classes slightly more challenging.”

Study skills

“More focus on in-depth multifaceted thinking.”

“Provided opportunities for internships, so I could get work experience before attending the engineering career fair at ISU.”

“Community college was nowhere near challenging enough to prepare for the academic rigor of the ISU College of Engineering. I had no real study skills since I did not need to take notes or study for exams to pass.”

“At the community college which I attended, there were not many classes that were considered problem solving. I wish there were more pre-engineering courses offered, at least courses which made you solve problems.”

Prepare for ISU experiences

“Maybe push a little more interaction with the university of choice to get yourself comfortable with it.”

“Hold higher academic standards and provide more challenging engineering projects. I felt that the academic standards at my community college were very similar to that of public high school.”

QUESTION #3

If you could give some advice to community college students who will be transferring to ISU, what would that advice be?

Consult with an academic advisor

“Consult with an advisor from ISU before signing up for classes at the community college.”

“I would recommend that students check with ISU frequently and ask an ISU advisor for the classes that would transfer while they are still taking classes at their community college.”

“Talk to an ISU advisor in the department you would like to transfer into, they know the score.”

Get involved

“Get involved and do more than just go to class and do more than just learn what is required.”

“Get involved with activities right away.”

“Join the admissions partnership program, if available. It is extremely useful.”

“To get involved right off the bat without overloading yourself. The sooner you meet up with people and network with people the more successful you’ll become.”

Make sure classes transfer

“If you don’t know what field you are going into, take general education classes that will transfer in. This will help with any stress associated with not having enough credits to transfer.”

“Make sure that you, yourself, make sure that all the classes that you are taking at the community college will transfer here.”

“Take a lot of math and science classes prior to transferring.”

“Take math and English requirements at community college.”

“Take as many classes as you can at the community college, they are better to get over with there, and you will avoid some of the giant sections here.”

“Work hard.”

Enhance study skills/form study groups

“Study!!!!!!!!!!!!!!”

“Study hard the first semester.”

“Improve your reading skills.”

“That even though you have taken college credit, ISU is more difficult than any community college. Meet classmates and form study groups.”

“Plan on studying a lot more.”

Be prepared and ask for help

“First thing you should do is look at the online page for each class. Especially look for homework and quiz information. I missed several assignments because I was not expecting the homework to be located there.”

“Expect some of the classes to be hard than you would like, and don’t forget to ask for help when you don’t understand the material being taught.”

“Plan out your four year schedule before you transfer.”

“It’s a great college to attend but be prepared for some intense classes that’ll test your commitment.”

“Learn the locations of important areas around your college (computer labs, places to eat, advising office, etc) before you transfer.”

“Explore programs and transfer plans.”

“Closely examine transfer plans before starting.”

“Look into the program classes that you can take at the community college and take all of the hardest ones there that you can.”

ABOUT SEEC

The Student Enrollment and Engagement through Connections (SEEC) program is a STEM Talent Expansion Program (STEP) that is funded by the National Science Foundation (NSF). The goal of the SEEC Project is to increase the number of engineering graduates at Iowa State University by approximately 100 per year. Iowa State University and Des Moines Area Community College are working together to attract more students to engineering. The percentage of women and minority graduates will approach 20% and 10%, respectively. The objectives of the project are:

- To enhance the Learning Community (LC) model at ISU by improving programming and availability; and to create a LC model that spans DMACC and ISU. (Learning Village)
- To redesign the first-year engineering curriculum to enable flexibility and commonality across LCs; and to make selected engineering gateway courses available to DMACC students via distance education. (Connected Curriculum)
- To develop and enhance academic advising and mentoring programs for pre-college, community college, and university students. (Student-centered Advising)
- To establish a recruiting and outreach network across Iowa and with alumni using ISU Extension, DMACC, and involving parents and teachers; to tap into diverse communities of students; and to improve the awareness and understanding of engineering among those who influence student choices. (Coordinated Networking)
- To evaluate project effectiveness and improve project activities. (Evaluation)
- To share best practices on campus in other areas of STEM, with other community colleges in Iowa, with other institutions in the Big 12 consortium, and at national meetings. (Dissemination)

www.eng.iastate.edu/seec/

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