

# Illinois Institute of Technology, IL

## Project: IIT Project

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### Version 5.0- Project

### Version 4.0- Project

**What projects have you been following on the Collaboration Network? What Q: have you learned from the experiences of other schools that is useful to your project?**

**A:** In addition to the projects we mentioned in V 3.0, we found the following tags/filters/Institution-Project useful:

University of Missouri-KC project.

University of St. Francis project

Mitchell Technical Institute project

We share some of the concerns expressed in the update reports on the above projects. The “At Risk” dashboard and the PACA team interactions with the Advising Center in the University of St. Francis Project appear to mirror elements of our team’s work with various programs and groups within IIT. Nevertheless, we have noted significant frustration on our campus with the lack of transparency surrounding vendor supported predictive analytics tools designed to improve persistence and completion. This has presented challenges, in several instances, where our faculty advisors are unable to understand the student-specific recommendations made by the EAB predictive analytics tool.

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## Version 4.0- Update

**Q: Your team has reached the midpoint in the Academy. Summarize your team's three most significant accomplishments thus far.**

**A:** The team's three most significant accomplishments are as follows:

First, although our institution is fortunate to have favorable retention statistics (for freshmen entering in Fall 2011, retention in the second, third, and fourth years amounted to 92%, 81% and 78% respectively), the leadership of the University has recognized the importance of further improvement.

Second, our team has highlighted the need to coordinate the activities of various groups on campus that are engaged in improving persistence and completion. In particular, in addition to our team, the other programs or groups involved in this task include: General Learning Strategies, Student Success Committee, Academic Resource Center, Retention Task Force, and EAB Predictive Analytics.

Third, our team has described two groups of students at the institution with potential for problems related to persistence and completion: the "visible" and "invisible" groups. Related results of database analyses were previously described.

**Q: Describe the significant challenges and encountered thus far. How effectively have you been able to address these challenges?**

**A:** The activities and challenges faced by programs or groups at the institution that seek to improve persistence and completion are described next:

### **General Learning Strategies (GLS):**

The institution has recognized that some students need intensive academic support. The **General Learning Strategies (GLS) program** (previously labeled as Kedge program) was designed to help undergraduate students on academic probation improve their study skills. GLS represents a specially developed three course sequence that helps students learn and practice study, time-management and communication skills.

### **Student Success Committee (SSC):**

SSC meets weekly to discuss student cases and trends in registration and persistence. It explores options for students who appeal for reasons, such as,

financial aid, family, medical, graduation, part-time enrollment, and more. Various offices from around the campus are involved and provide valuable resources about policies and trends. SSC often reviews students who are not registered, last year of graduation, high tuition balance, and failing mid-term grades. University faculty also communicates with SSC to monitor students who may fall behind due to lack of attendance, grades, and other factors.

As a commitment to retention, SSC actively reaches out to students to register for upcoming semester and clear out any foreseeable obstructions for students, hence keeping first year retention above 90% and helping to increase graduation rate.

### **Academic Resource Center (ARC):**

Support from the Dr. Scholl Foundation has helped the Academic Resource Center (ARC) to increase both the number of student visits and the available resources for Illinois Tech students. The demand for supplemental instruction (SI) has increased; some faculty members have requested to participate in the program. Two more sections for Supplemental Instruction were added, following request from faculty for freshmen and sophomore courses. The number of tutorial sessions offered by the ARC has increased significantly over the years from 3,354 in 2002 to 12,008 in 2014. In 2014, the SI program registered an increase of over 160% compared to 2013. For this academic year, 19 sections are supported by the ARC. Tutors work with both faculty and students in a variety of subjects. Tutors meet with students in person or virtually, through Blackboard Collaborate.

### **Retention Task Force (RTF):**

RTF gathered all the retention efforts on-campus that demonstrated an increase in first year retention and/or steady increase in persistence and graduation. These efforts include programs from GLS, ARC, SSC, and RTF meetings. RTF is exploring new steps such as a reliable and useful early warning system that will include advising tools, direct student communication, and charts to show collective and independent student progress.

### **EAB Predictive Analytics:**

EAB provides valuable insight for the university at a student level. It uses its own markers to identify students who are under performing. Markers include and may not be limited to key courses per academic department that serve as gate keeper courses. Other general markers may include: GPA, enrolled credit hours, grades and more. The system also provides valuable resources for advisors to recommend other low risk majors at the university. EAB's predictive analytics tool is also able

to classify undergraduate students within each college/school at our institution into one of the following three risk-categories with regard to persistence and completion: low-risk, medium-risk, and high-risk.

However, EAB comes with certain challenges as well. The recommended majors may not be low risk for certain students based on courses taken at the university. Similarly, some markers from EAB may incorrectly classify students as “high risk” based on enrolled hours or recent course grades.

EAB tool provides very basic information about the university and our students. The mechanism used to classify or predict are not transparent. It leaves us to perform further analysis to create a proper picture for persistence and retention.

A key challenge lies in effectively coordinating all efforts on our campus that are related to persistence and completion. To this end, we plan to meet with these groups/programs to share our findings, and to improve such coordination efforts.

**Q: How have you incorporated the feedback from your Mentor and Scholar?**

**A:** As proposed in V3.0, our plan is to implement a plan that targets the visible group, and to develop a survey and a strategy for the invisible group. This approach was supported by our Mentor and Scholar, and we expect to report results in future updates.

**Q: Describe your campus’s level of engagement in your project.**

**A:** Our team would characterize the campus’s level of engagement on retention/persistence efforts as highly motivated (as described earlier).

**Q: recharge the Academy team’s efforts. How will the midpoint round table function in the life-cycle of your project?**

**A:** At the Midpoint Roundtable, we expect to present the results of additional analysis for which data collection/data cleaning efforts are ongoing at the present time. We expect that the Midpoint Roundtable will serve as the point to establish the project on a firm footing, and to refocus efforts to execute strategies designed to improve student persistence and completion.

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**Version 4.0- Response**

**Q: Please give your name and contact information (email address and/or phone number).**

**A: Primary Mentor:**

Bob Haas

haasr@mtc.edu

740-725-4078 (new number since last response)

**HLC Scholar:**

Gloria Rogers

grogers@hlcommission.org

**Q: What are some strengths of this project/Academy work? Why are these strengths?**

**A: Reviewed by Robert Haas (Primary Mentor):**

Reviewing other Academy Institutions' projects is a positive step in discovering potential effective practices. Seeking to understand the methodology behind the predictive analytics tool is also a good step...it is critical for faculty and advisors to be comfortable with the results or the recommendations will simply be ignored. The increase in ARC sessions is noteworthy; the data suggest a robust tutoring program. Garnering grant support for the ARC is also a positive step.

IIT reports continuing strong support from top-level administration for its persistence and retention initiatives.

**Reviewed by Gloria Rogers (HLC Scholar):**

Another strength of this work is the team's coordinated effort among the various entities on campus to provide support for student persistence. The work being done around the "invisible" group is especially noteworthy. I will be anxious to see how your work progresses in this area. The unique mission and make-up of IIT provides you with a focused approach and the team's work to bring the various

groups on campus together to share their work and successes/challenges will help to achieve your overall goals.

**Q: What remains unclear or what questions do you still have about this work improve student persistence and completion.**

**A: Reviewed by Robert Haas (Primary Mentor):**

It might be illuminating to to use the EAB tool retroactively to test the model based on known outcomes (it is also possible this has occurred and was simply not reported). For example, run a random sample of prior students through the EAB model (students for whom the outcome is known) and see how well the EAB model predicts what actually happened with the students. The predictive analytic tools can be very useful, but if faculty and advisors are not confident in the predictive power, it seems likely the appropriate level of buy-in will not be achieved. Running some retroactive tests might help convince faculty of the tool's usefulness.

In version 3, IIT reported "retention problems are exacerbated from students who are commuters, male, and who are taking Math 148" and that results will be compared for Math 148 students who receive and do not receive SI. However, no specific interventions were described for the "at-risk" student group, and no results are presented for the the SI participants vs. non-participants. It is possible these are in progress; consider including an update, even if these ideas were abandoned or are still in progress.

**Reviewed by Gloria Rogers (HLC Scholar):**

I concur with Robert's comments about the analytic tool. The lack of "transparency" could be an issue with the tool or the lack of "training" on how to use and/or interpret the findings. This may be a discussion you want to have with the vendor. It is also important to remember that good decision making is a combination of data + wisdom. Having the right people in the room who understand what is currently happening to support student retention and also how the data were analyzed will enhance the quality of the decisions made.

I am interested in how you are engaging the large number of instructional assistants in your persistence and completion efforts (grad students who are teaching outnumber in headcount your full-time faculty). How are they being informed of unique challenges for some students and provided support to engage them in your efforts?

Your previous retention success is commendable. Roberts suggestion of a backwards application of the predictive tool may be revealing.

Under the section of your accomplishments to date, you mention three things: 1) Administration recognizes that it is important 2) you are going to coordinate the campus efforts, and 3) you have identified two groups of students. It would be helpful to know what the Academy Team is doing in relation to these three things.

1) is a statement of fact, 2) is something you are planning on doing according to this post, and 3) is something that was done early in your participation. Can you provide more information on how often your team meets and what specific actions you are taking beyond sharing what other groups are doing. Coordination of efforts and collaboration is important! Your Team can play an important role in this but I would like to know how the Academy team is functioning and what specific tasks are being completed.

**Q: What are some critical things to which the institution should pay attention as it plans its work for the next six months?**

**A: Reviewed by Robert Haas (Primary Mentor):**

IIT is on track with its efforts. IIT is appropriately self-reflective about the EAB predictive analytics software, and reports the campus is highly motivated regarding efforts to improve persistence and completion.

In earlier versions, IIT reported difficulty in using the National Student Clearinghouse to track students who drop out. IIT might consider analyzing whatever data are available from the Clearinghouse, especially to test the idea that many students drop out due to financial constraints.

IIT might also consider whether the survey discussed in versions 3 & 4 will be administered systematically.

IIT reports fall-to-fall term retention results for freshman entering in fall 2011, so a baseline is established. It would be interesting to see the data for the fall 2012, 2013, 2014, and 2015 cohorts; possibly for both fall-fall and fall-spring. It might also be interesting to see if the rates vary significantly by advisor to determine if there is an internal "best practices" model from which IIT could learn.

**Reviewed by Gloria Rogers (HLC Scholar):**

It appears that the Team has taken more of a role of clearinghouse for the P&C activities that are taking place. It will be important to begin to do some evaluation of the effectiveness of the activities that are currently taking place (as a part of your "coordination" role). Being able to identify the students who are best served by different interventions will be important to focusing your efforts.

I agree with Robert that your efforts to collect survey data from the "invisible"

students may provide you with some good information on how to reach out to this group. Be sure that you have someone who understands the development of surveys work with you to be sure that it is valid...you are asking the kinds/types of questions that will get you what you need to know and that students will respond to.

I will be anxious to see you at the roundtable.

Scholar(s):	Gloria Rogers
Primary Mentor(s):	Robert Haas

### Version 3.0- Project

**Q: Select your Track:**

**A:** Project Development

**Q: What projects have you been following on the Collaboration Network? What have you learned from the experiences of other schools that is useful to your project?**

**A:** Much of the discussion in our team has focused on two groups of students with potential problems related to persistence and completion. We label these “visible” and “invisible” groups. The visible group includes students who are on our radar screen, especially in terms of the variables we have previously identified that provide early warnings about potential problems toward degree completion. The invisible group consists of students who are doing very well academically, and whom the institution desires very much to retain, but who drop out unexpectedly. Often, we only find out that these students have dropped out after the fact.

Within the Collaboration Network, we found the following tags-filters/Institution-Project especially useful:

- Early warning/Early Alert; New Mexico Military Institute
- Assessment at Entry; Tulsa Community College
- First Year Experience/Seminar; IAIA Project
- High Impact Practices; Wayne State College

With regard to New Mexico Military Institute, one aspect we have in common with that institution is that we started out with the notion that we had plenty of data to be analyzed. While that notion has strengthened over time, we also became recently sensitized to the prevalence of the invisible group described above for which we do not have any data. In particular, we liked the efforts at Tulsa Community College to collect Student Intentions data. We also learned from the first year experience described in the IAIA project, and from the Wayne State College project.

### Version 3.0- Update

**Q: Describe your team's initial implementation of the project you have designed.**

**A:** The initial implementation of the project involved a small subset of the campus-wide Accreditation Committee. Since then, the project has included representation from two other committees on campus that focus on retention/completion issues: The Student Success Committee, and the Retention Task Force.

**Q: How has your project developed and changed since the initial plan that was drafted at the Roundtable?**

**A:** With regard to the visible group, our future plan is to improve student engagement to improve retention. We plan to accomplish this goal by seeking the help of undergraduate students who have already completed Math 148 course successfully to work with students that currently face problems in that course, based on inputs provided (for the Early Warning System) by the instructors of Math 148.

As mentioned earlier, we also need to learn more about, and develop intervention strategies for, the invisible group.

Our team has suggested two ideas to tackle the above:

- First, since all students in the invisible group have historically shown high GPAs, our team proposed a survey of undergraduate students on the Dean's List for each school/college on campus. As explained earlier, this short survey will be targeted to students on the Dean's lists because historically, a large number of students in our invisible group have done exceedingly well academically. This survey will seek answers to basic questions such as: does the student expect to complete his/her degree at IIT, when does he/she expect to graduate, does he/she expect to enroll for graduate education, and if so where?

- Second, undergraduate students on the Dean's List for each school/college on campus will be encouraged to apply for the Leadership Academy on campus. This academy was designed to provide a superior student experience on campus. The motivation behind this proposal is to increase student engagement for an audience that potentially includes members of our invisible group.

**Q: How have you incorporated the feedback from the Consolidated Response to your previous Project Update?**

**A:** Some of the suggestions provided in the feedback may be difficult to implement. For example, we have a high retention rate (compared to our Academy cohorts), and we are a relatively small sized private university. So the number of students with potential persistence/completion issues is relatively small to conduct analyses on differences in retention rates by various academic programs. To overcome this problem, we will explore if qualitative data can provide us some insights.

Another problem is with regard to following up with students who left is the difficulty we may face in determining if they attended a different institution since. We do have international students who may drop out, and they are not captured by Clearinghouse data after they drop out.

Faculty members represent the first point of contact with regard to building awareness on persistence and completion issues. If an enrolled student fails to attend classes, the mechanism available to instructors to report this becomes an important and basic input for managing potential retention issues.

We also have a mechanism in place for personalized communication and follow-up with returning undergraduate students who failed to register for classes before the add/drop deadline for course registration. As an example, 132 personalized emails were sent out to such students in this semester, with tailored follow-up as needed.

Students are placed in Math 151 based on an assessment at entry to the institution (during the review process for undergraduate admission).

Given the (relatively speaking) higher rigor and quantitative emphasis of IIT education, it is possible that some students who applied for a more rigorous major (such as engineering) may decide to pursue another major. To avoid adverse retention implications from this, IIT has processes in place that encourage such students to consider other majors within IIT.

**Q: What are your goals for the next six months? How will this advance your project?**

**A:** As mentioned earlier, our plan for the invisible group is to implement a survey of students in the Deans' List for various schools/colleges on campus, and to take steps encourage this student group to consider applying for the Leadership Academy.

For the visible group, we plan to monitor results from a recently implemented plan to have undergraduate students (called "SI" for Supplementary Instruction) who have good grades and who have already completed Math 148 to work with students currently taking this course, with the goal of improving learning outcomes.

Our data also show that the retention problems are exacerbated for students who are commuters, male, and who are taking Math 148. Based on data availability, we plan to do compare sections of Math 148 with SI with those without SI, in terms of outcomes.

**Q: What challenges do you anticipate? How will you address them?**

**A:** At this point, it is difficult to anticipate the challenges we may encounter. The leaders of the University have been very supportive of our team's efforts to improve retention rates, so we expect that any challenges will be successfully overcome.

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### Version 3.0- Response

**Q: Please give your name and contact information (email address and/or phone number).**

**A: Primary Mentor:**

Bob Haas

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**HLC Scholar:**

Gloria Rogers

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**Q: What are some strengths of this project/Academy work? Why are these strengths?**

**A: Reviewed by Robert Haas (Primary Mentor):**

IIT is attempting to nudge a very high persistence rate even higher, and recognizes the gains likely to be made will be incremental. The conceptualization of separating potential non-persisting students into "visible" and "invisible" is evidence IIT has developed an appreciation for the deeper data analysis that might be necessary to identify and intervene proactively with students at-risk of dropping out. At the same time, IIT recognizes the relatively small number of students might not provide sufficient data for a quantitative analysis and is considering adding qualitative data analysis to its persistence and completion strategy.

IIT has developed a specific plan to target the visible group and is developing a survey and a strategy for the invisible group. Inviting more students to become members of the leadership academy as a way to increase student engagement is a good step.

IIT has explored submissions from other Academy Collaboration Network members and discovered some ideas to consider.

**Reviewed by Gloria Rogers (HLC Scholar):**

I concur with Bob, that identifying the "invisible" group of students is a strength in that you are targeting a group of students who, if they persist, have a high chance of graduating because of their academic status.

I also think that consolidating your efforts with the Student Success Committee and the Retention Task Force is another strength of your project. Collaborating with other committees with a similar focus and commitment to student success will prevent overlap and diffusion of resources.

**Q: What remains unclear or what questions do you still have about this work improve student persistence and completion.**

**A: Reviewed by Robert Haas (Primary Mentor):**

IIT reports it has strong support from the University's leaders for its persistence and completion effort. IIT also recognizes that "faculty members represent the first point of contact with students." It might be possible to further explore the role faculty play in persistence and completion, and determine if faculty are willing to become even more engaged with students.

**Reviewed by Gloria Rogers (HLC Senior Scholar):**

I understand why the Dean's list students would be a logical choice for investigating the "invisible" group. However, what percent of the students who do not persist fall into this group? Have you looked at the "murky middle?" That is, what about those students between a 2.3-3.0 who do not persist? Have you done the analysis?

In your follow-up with students who have not registered before the drop/add deadline, how do you determine when they need a "tailored follow-up?" What does that follow-up look like? Personal contact or another email?

I am also interested in the nature of the "encouragement" provided to students who appear to have chosen a major that is too rigorous for their math entrance scores. This is a great strategy to help students avoid academic frustration and/or failure. Is this an intrusive advising process? How successful has this intervention been? That is, what percent of students who have been "encouraged" actually change their major and persist?

Is the "supplemental instruction" intervention required for the students in the experimental group? If so, how are the peer instructors trained? What is your evaluation plan? You indicated that you are going to compare the SI group with the non-SI group in terms of outcomes. Will the evaluation only focus on summative data (e.g., grades) or will there be formative assessment as well so interventions can be developed?

**Q: What are some critical things to which the institution should pay attention as it plans its work for the next six months?**

**A: Reviewed by Robert Haas (Primary Mentor):**

It will be interesting to monitor the progress of the planned initiatives. As additional students are invited to participate in leadership opportunities, it might be useful to see if students who are not specifically invited feel left out, possibly creating a new factor that might negatively impact persistence.

The attitude of faculty toward the increased emphasis on persistence and completion could be important to monitor. Are faculty generally supportive of working to increase student engagement?

**Reviewed by Gloria Rogers, HLC Scholar:**

Based on my questions above, I would encourage you to build both formative and summative assessments into your Math 148 Supplemental Instruction pilot test -- for both the experimental and control group. Ongoing assessment will help you to understand both the implementation success of SI as well as the outcomes.

I also encourage you to think about how you might collect data from the "murky middle" group of students. It might be informative to understand how/if they differ from the high academic achievers--both in their responses to the survey and their overall historical completion rates.

Scholar(s):	Gloria Rogers
Primary Mentor(s):	Robert Haas

**Version 2.0- Project****Q: Select your Track:**

**A:** Track B: Data Analysis and Strategy Refinement

**Q: How has your project developed and changed since the Roundtable?**

**A:** We previously identified the following candidate variables for discriminant analysis:

- First math grade
- ACT or SAT score
- High school quality
- Gender
- Race/ethnicity
- Some measure of student engagement
- Whether student lived on campus for both semesters of their first year
- Major
- GPA (cum, major, first semester, first year)
- Citizenship

- Application address (as a proxy for climate differential between home and IIT)
- Whether student is a legacy student
- Some measure of the adequacy of their financial aid package, such as out-of-pocket costs paid by student.
- Average credit load
- Number of times student changed major

The purpose of conducting the discriminant analysis is to gain predictive insight on variables that most discriminate students that belong to the following two groups: those who persist and complete graduation and those who do not.

Our initial database contained records on 7152 students with information on those that persisted and those who did not.

When we ran the discriminant analyses, several of these student records could not be analyzed because of missing data on one or more of the candidate variables (for example, some students had missing data on ACT or SAT score because they took a placement exam or equivalent on campus). Of the 7152 students in our database, we could analyze the records of only 2841 students initially. The results indicated that the following variables contributed most to discriminating students who persisted from those who did not (listed in order of importance):

Cumulative GPA

First Year GPA

Major GPA

First Term GPA

Final Math Grade

Average Credit Load

FM\_Unmet\_Need

In summary, our analysis indicates that:

(a) For students who actually persisted, our estimated discriminant function could correctly predict such persistence with 95.7% accuracy; in other words, 4.3% of

such students were incorrectly classified as non-persisting

(b) For students who did not persist, our estimated discriminant function could correctly predict the lack of persistence only with 28.4% accuracy; in other words, 71.6% of such students were incorrectly classified as persisting. We will attempt to build more models to determine if this pattern of accuracy can be improved. A huge challenge/limitation however, is that the Final Math Grade information is unavailable (or missing) for transfer students who joined IIT after attending another institution.

(c) It is reassuring that five of the seven variables listed above as contributing most to the discriminant function are GPA related; six of these variables are academics-related, and only one is related to unmet needs in the financial assistance offered.

(d) It is clear from our analysis that Gender, Race/ethnicity, and Citizenship (i.e., country of origin for the student) are not contributing to discriminant function i.e., they do not appear to matter while comparing students that persist/complete and those who do not. Our group interpreted this as good news for IIT, because it contradicts (in a good way) the widely held notion that minority students are at a greater risk than non-minority students with regard to persistence. This is hugely important for us, and we need to carefully study what factors are at work at IIT that have contributed to this success re: minority students and persistence.

(e) With regard to the few students with high GPAs that decide to leave IIT, recent interactions indicate that they are motivated to continue their studies at a higher-ranked university. As suggested, our future plan is to investigate this further using data from NSSE and/or Clearinghouse.

(f) We have expanded our group to bring representation for other groups on our campus that are working on student persistence/retention issues (e.g., Student Retention Task Force, and Student Success Committee). This will better inform our future discussions and analyses.

(g) With regard to increasing faculty awareness of this project, we plan to have the office of Vice Provost for Academic Affairs to reach out to faculty in order to communicate our findings.

(h) We encountered missing data problems with regard to analyses focused on differences in persistence across our academic programs. We will continue to investigate if there are potential solutions to this problem.

(i) Our group has proposed that students entering the University for the first time (say at the time of orientation program) should be asked the question “Do you expect to graduate with an IIT degree?” with a yes/no response, followed by an open-ended explanation opportunity. One suggestion here was to implement this question in the *Students Speak* survey administered periodically. Our group will pursue this idea in the coming months.

With regard to the point that students may change their field of study and transfer out to pursue a major not offered at IIT, we need to investigate that also as a future survey question. With regard to changing the major within the programs offered at IIT, our discriminant analyses show that changing majors often (as a variable) does not discriminate between the group that persists and the group that does not.

**Q: What were your goals for the past six months? Did you achieve them? Why or why not?**

**A:** Our original goal was to analyze the available data to identify the variables that contributed most to persistence. We have succeeded in this task.

**Q: How did you incorporate the feedback that you received on your previous posting?**

**A:** We had significant difficulty in tracking students who left IIT before graduation. Although the Clearinghouse and tracking ‘transcripts sent’ initially appeared to be good leads to follow, we did not find this helpful so far. But we will continue to investigate this further.

We will communicate the results with faculty and other groups on campus through the office of Vice Provost for Academic Affairs, through posts at publicly accessible websites and through discussions within faculty forums.

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### Version 2.0- Update

**Q: What are your goals for the next six months? How will this work advance your project?**

**A:** We plan to incorporate in the future a question in a future student survey that seeks student responses to questions about their intention to complete/graduate from IIT.

We also plan to reach out to more faculty/staff committees within IIT that address student retention and completion issues, so that the strategies that we develop will be more insightful/informed.

**Q: What challenges do you anticipate?**

**A:** Some of the data we need for analyses are just not available, but it is fair to say that IIT has more information about more variables on student persistence/retention issues than other universities.

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**Version 2.0- Response****Q: Please give your name and contact information (email address and/or phone number).****A: Primary Mentor:**

Susan Hatfield SHatfield@hlcommission.org

**HLC Senior Scholar:**

Gloria Rogers grogers@hlcommission.org 812-240-9770

**Q: What are some strengths of this project/Academy work? Why are these strengths?****A: Reviewed by Susan Hatfield:**

IIT has made significant progress in understanding which students are likely to persist and which students are less likely to succeed. The analysis performed should provide a interesting basis for further discussion.

**Reviewed by Gloria Rogers:**

The fact that you have expanded the team to include representation from other groups on campus who are also working on student persistence/retention issues is a strength. Having multiple perspectives of the issues will be increasingly important as you move to the project development stage of your work.

**Q: What remains unclear or what questions do you still have about this work improve student persistence and completion.**

**A: Reviewed by Susan Hatfield:**

Only about 40% of the students had complete datasets and were included in the analysis. Have you been able to determine what caused the gaps in the data (beyond ACT or SAT) or might you be able to backfill some of this data? Do you have any idea if the persistence rates of the incomplete dataset students are comparable to the persistence rates of the group for whom you have a complete profile? Were you able to break down the data by year (presumably you were looking over many years of data) to see if there had been any changes over the time period?

What difficulties are you having with the Clearinghouse? That is generally the easiest way to track migration, so I'm disappointed to hear that this hasn't been a useful avenue of exploration. There might be other schools in the academy who have had more success using the Clearinghouse and would be willing to talk with you about their process.

Beyond sharing the analysis of the data and developing the survey, by what process will you reach out to faculty and staff (for instance, will this be through informal conversations, a faculty development event, a newsletter?)

**Reviewed by Gloria Rogers:**

In addition to Susan's questions, I would like to know how you define "minority students." Are all students who are not white, Caucasian considered minority or only those in underrepresented categories for STEM? Have you distinguished between STEM/non STEM majors?

You indicate that "...few students with high GPAs that decide to leave IIT, recent interactions indicate that they are motivated to continue their studies at a higher-ranked university." What is meant by "recent interactions?" What was the means of data gathering to come to this conclusion. I agree with Susan, the Clearinghouse data is generally pretty straight forward in providing this information.

It appears that all of your communication about the work of the Academy team will go through the Provost's Office. How is this being coordinated by the team?

Notices on websites generally will go "un"noticed. Is this effort a part of the institutions strategic initiatives?

**Q: What are some critical things to which the institution should pay attention as it plans its work for the next six months?**

**A: Reviewed by Susan Hatfield:**

While IIT does seem to have significant data analysis capabilities, the analysis thus far appears to have been primarily limited to data from the academic record (GPAs, math grade, credits). The posting mentioned that IIT has more information about more variables on student persistence/retention issues than other universities. This additional data will serve you well as you drill down into specific groups of interest -- for instance, high GPA students who do not persist, etc. Tapping into the data of the additional 60% of students not included in the original sample would also be important.

**Reviewed by Gloria Rogers:**

I concur with Susan. It is important for the team to recognize that even though there are LOTS of data, if it doesn't include all the right data, the results will be obvious. For example, one could predict with a high probability without the data that grades and finances are a primary factor in student persistence. However, what are other factors that contribute to student persistence. Like Susan, I believe you need to not eliminate variables that might be key to the missing 60%.

Scholar(s):	Gloria Rogers
Primary Mentor(s):	Susan Hatfield

**Version 1.0- Project****Q: Select your Track:**

**A:** Track B: Data Analysis and Strategy Refinement

**Q: Describe the initial project you developed at the Roundtable. Focus particularly on the general strategies you developed.**

**A:** See plan questions

**Q: What are the desired outcomes of this project? How will you know that you achieved each of these outcomes?**

**A:** See plan questions

**Q: What serious challenges do you expect to encounter? How will you deal with them?**

**A:** See plan questions

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### Version 1.0- Update

**Q: Describe the specific steps you will be taking in Year 1 to develop and implement the early stages of your project.**

**A:** See plan questions

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### Version 1.0- Response

**Q: Please give your name and contact information (email address and/or phone number).**

**A: Primary Mentor:**

Susan Hatfield

SHatfield@winona.edu

**HLC Senior Scholar:**

Gloria Rogers

grogers@hlcommission.org

812-240-9770

**Q: What are some strengths of this project/Academy work? Why are these strengths?**

**A: Reviewed by Susan Hatfield (Primary Mentor):**

IIT has data from which they can start forming research questions. Variables to investigate have been identified. IIT is planning on conducting statistical analyses in order to understand what factors might contribute to students' non-persistence.

**Reviewed by Gloria Rogers (HLC Senior Scholar):**

In the absence of an update, the original plan has specific observations that will drive the work done in the Academy. Being focused will enable IIT to maximize its experience. Variables that are "important determinants" have been identified and will be analyzed for further insight.

**Q: What remains unclear or what questions do you still have about this work improve student persistence and completion.**

**A: Reviewed by Susan Hatfield (Primary Mentor):**

As I recall, IIT already has an admirable retention rate. How many students are in the cohort that is not retained? Is there a enough students in that sample that the statistical analysis would be valid.

It might be interesting to also try to understand why the 30% of the students with high GPAs left IIT.

Analyzing the difference in retention rate by program would make sense -- as I recall, there are differences among programs.

Have you followed up with the students who left to find out if they attended a different institution? You can do this through the Clearinghouse, but you might also get some information by finding out to where students sent transcripts.

What course is Math 151? Is it a course that students place into through some sort of exam, ACT score, or high school class?

Are faculty aware of this project? Are there faculty development projects planned to bring faculty up to date on the project?

Given the nature of the institution, is it possible that some students change their

minds about their fields of study and transfer out to pursue a major not offered an IIT, or just decided they wanted a different kind of college experience?

**Reviewed by Gloria Rogers (HLC Senior Scholar):**

Susan raises some important questions. I look forward to seeing your responses. Also, do you get any indication of what students intentions are when they come to IIT? How do your admissions requirements shape the nature of your student body? Are there some students who are admitted on a "provisional" basis? If so, how are these students supported and tracked? Do you currently have support programs for students who have been identified as "at risk?" If so, have they been evaluated for effectiveness?

**Q: What are some critical things to which the institution should pay attention as it plans its work for the next six months?**

**A: Reviewed by Susan Hatfield (Primary Mentor):**

Putting together a specific plan for the next six months will be the next step.

Specifically, now it is time to work on refining your research questions and planning out your timeframe. By when will the first data analysis be available? What happens after that? How will the data be shared? What gaps in the data did you find and how can you fill them?

**Reviewed by Gloria Rogers (HLC Senior Scholar):**

In the absence of a specific plan for the next 6 months update, I concur with Susan's comments. The purpose of participation in the Collaboration Portal is to support you in your project so that your Academy experience is maximized. You are encouraged to optimize your investment by documenting your progress on the Portal and take advantage of support provided by experienced mentors. We can only be effective if you let us know how your project is progressing.

Scholar(s):	Gloria Rogers
Primary Mentor(s):	Susan Hatfield

## Context

**Describe your initial plan for improving student persistence and completion Q: (Track B) or for developing data sets on persistence and completion (Track A) on your campus.**

**A:** Illinois Institute of Technology is a Track B institution.

We observed the following three trends in preliminary work with the datasets submitted earlier:

1. 70% of students who left IIT voluntarily in the past 5 years had a GPA  $< 3.0$ ; 50% had a GPA  $\leq 2.5$ .
2. When these students were surveyed, the most frequently reported reason for leaving was that they could no longer afford to attend IIT.
3. Only about half of the students who get a grade of "C" in Math 151 or Math 148 ever graduate.

Our team will initially develop profiles of successful (those who persist and complete) and unsuccessful (those who leave before completing) students:

After examining our data, we identified the following variables that appear to be important determinants of persistence and completion for our undergraduate students.

- First math grade
- ACT or SAT score
- High school quality
- Gender
- Race/ethnicity
- Some measure of student engagement
- Whether student lived on campus for both semesters of their first year
- Major
- GPA (cum, major, first semester, first year)
- Citizenship
- Application address (as a proxy for climate differential between home and IIT)
- Whether student is a legacy student
- Some measure of the adequacy of their financial aid package, such as out-of-pocket costs paid by student.
- Average credit load
- Number of times student changed major

Our plan is to conduct a discriminant analysis with the above variables. In the proposed discriminant analysis, we will develop a linear regression that can be used

to predict which of two groups (successful graduation or unsuccessful separation) that any student is likely to belong. To generate such predictions in the proposed two group discriminant analysis, we will use our retention/separation database to estimate a discriminant function that maximizes the distance between the two groups or outcome categories.

**Q: What is the broader impact of your Academy work on the institution, faculty and staff, students, or other stakeholders?**

**A:** We are also developing our Academy participation as a Quality Improvement Initiative. We expect this will provide several opportunities for us to engage our faculty and staff, and to communicate the impact of our Academy work (e.g., any improvements on retention and graduation rates resulting from this participation).

**Q: What else is important to know about your work on student persistence and completion?**

**A:** Our team formulated the following research questions for future exploration:

1. When students leave IIT, where do they go? (Particularly “good” students)?
2. How are IIT’s co-terminal degree programs (i.e., 4+1 programs whereby enrolled students get a baccalaureate and master’s degree at the same time, after paying the baccalaureate tuition rate for all five years) affecting IIT’s 6-year graduation rate?
3. Among students who get a “C” in their first Math course at IIT, how do the students who persist differ from those who don’t?
4. Case studies of departments with the highest and lowest graduation rates.

## Comments

Items for consideration:

1. As Gloria and Susan mentioned, it seems you have lumped "minority students" into a single classification. If my observation is

correct, it is possible there might be value in exploring whether differences exist based on the type of minority student. It is also possible you have already performed this analysis!

1: 2. IIT has done an excellent job of analyzing data in a quantitative manner. One point mentioned is that less than 50% of students who earn a C in the beginning Math class ever graduate. In a search for a root cause, then, it might be productive to explore why this is, or to explore whether the Math course is a candidate for possible redesign.

3. It is possible that some type of qualitative analysis might help IIT understand any non-quantitative factors impacting student persistence. For example, are there characteristics common to students who persist in spite of indicators of non-persistence (low math score)?

Robert Haas, 2015-09-11

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**Tags:**

- Early Warning/Early Alert
- High-Impact Practices
- Assessment at Entry