



# Mobility Program in Industrial and Systems Engineering

## June 10 – 28, 2019

This study abroad program is coordinated by the Northern Illinois University Study Abroad Office (SAO), in cooperation with the NIU College of Engineering and Engineering Technology and Department of Industrial and Systems Engineering.

The program will be carried out in collaboration with Universidad de La Sabana (ULS) in Chía, Colombia.

**PROGRAM DATES:** The academic program will begin in Bogotá on Monday, June 10, 2019, and will end on Friday, June 28, 2019. Students will be responsible for making their own air travel arrangements to and from Bogotá. Students should plan to arrive in Bogotá on Sunday, June 9 and depart on Friday, June 28.

**PROGRAM DIRECTOR:** Reinaldo Moraga, Associate Professor of Industrial and Systems Engineering in the NIU College of Engineering and Engineering Technology will serve as the program director. Dr. Moraga received his MSc and PhD from university of Central Florida. He joined NIU in 2005 and has taught *Simulation* several times as well as published several articles on the applications of simulation to industrial-related problems.



**PROGRAM CO-DIRECTOR:** Alfonso Sarmiento: Associate Professor and Coordinator of Internationalization, Faculty of Engineering, Universidad de La Sabana, Chía, Colombia. Ph.D. in Industrial Engineering, University of Central Florida, Orlando, Florida, May 2010.



**PROGRAM OVERVIEW/OBJECTIVES:** This program intends to address two main areas of action: (1) **Study abroad** opportunities for NIU engineering students; (2) **Recruitment** of students from South American countries, such as Colombia, in order to improve diversity of our student body; (3) **Collaborative research** around common challenges. The ultimate mission of the program is to increase awareness of the education and research capacity in Colombia and in Latin America within NIU students.

The summer program will offer a course in Simulation Modeling and Analysis (ISYE480/580), which are core subjects of the Industrial and Systems Engineering curriculum at both universities. In addition, NIU students will take a course on Special Topics in Global Manufacturing (ISYE498/593). As part of the curriculum of this class NIU students will visit

three major American companies established in Colombia in order to have an insight on how production processes are influenced and affected by cultural factors.

The program will take place during the summer term at ULS. NIU and ULS have both signed a MOU in order to seek close collaboration between their engineering colleges. Students will be registered for the academic courses at NIU, thus facilitating the academic recognition of the activities they will develop abroad. (Note: The NIU Study Abroad Office registers study abroad students for their respective courses.) On the other hand, students from ULS will also register for the courses and will use the opportunity to take courses offered by international professors, in English. For three weeks, students from both institutions will be in the same classroom, sharing their ideas and projects and getting to know each other at an academic and cultural level.

Students from NIU will travel together with NIU Professor Reinaldo Moraga. Dr. Moraga will be in charge of teaching the courses in collaboration with a professor from ULS specialized in the same area. The program will bring both students and the faculty member together.

It is important for NIU students to have an insight on how production processes are influenced and affected by external factors, specifically those related to culture. This program will help to tackle the following obstacles: safety concerns (perception vs. reality), language barriers (lack of courses offered in English in Latin American institutions), lack of awareness of educational and research capacity in the region, and recruitment of South American students.

As part of a long-term collaboration strategy with ULS, the main goal is to maintain this study abroad program as part of the yearly study abroad offer at NIU and ULS.

**PROGRAM SITE:** The residential program will take place at ULS in Chía, Colombia.

The country is located in the northwest of South America, bordered to the northwest by Panama; to the east by Venezuela and Brazil; to the south by Ecuador and Peru. It also shares maritime limits with Costa Rica, Nicaragua, Honduras, Jamaica, Dominican Republic and Haiti.

Colombia is ethnically diverse, with descendants of the original native inhabitants, Spanish colonists, Africans originally brought to the country as slaves, and 20th-century immigrants from Europe and the Middle East. This has also been influenced by Colombia's varied geography, and the imposing landscape of the country has resulted in the development of very strong regional identities. The majority of the urban centers are located in the highlands of the Andes mountains, but Colombian territory also encompasses the Amazon rainforest, tropical grassland and both Caribbean and Pacific coastlines. Ecologically, Colombia is one of the world's 17 megadiverse countries, and is considered the most megadiverse per square kilometer. Colombia is a middle power with the third largest economy in Latin America, is part of the CIVETS group of six leading emerging markets and is an accessing member to the OECD. Its principal industries include oil, mining, chemicals, health related products, food processing, agricultural products, textile and fabrics, garments, forest products, machinery, electronics, military products, metal products, home and office material, construction

equipment and materials, banking, financial services, software, IT services and the automotive industry. For more information about the country, please visit: <http://www.colombia.co/en/>

Chía is a small town located 7 km away from Colombia's capital, Bogotá. This town has the advantage of being very close to the capital so that students can visit and get to know it very well, without having to deal with its heavy traffic every day.

Founded in 1979, Universidad de La Sabana is an increasingly recognized Colombian university, both nationally and internationally, for its academic quality and human-centered education. Twice (2006-2010 / 2010-2016) it has been given the National High Quality Accreditation by Colombia's Ministry of Education. In Colombia only 31 out of 286 higher education institutions have received this recognition.



Its academic offer is constituted by 21 undergraduate programs in the areas of Health Sciences, Engineering, Psychology, Education, Communication, Law, Economic Sciences and Management, Philosophy and Human Sciences; 58 specializations, 16 medical-surgical specializations, 23 Masters Degrees and 2 Doctorates. The Universidad de La Sabana has 58 research groups which work collaboratively with research groups around the world in co-researching and co-publishing, and that support the six academic journals in Nursing, Medicine, Law, Education, Communication Studies and Humanities.

**HIGHLIGHTS:** Among the academic and extra-academic offer included in the program, there will be small trips to Bogotá and other tourist sites around Chía.

The academic component includes weekly meetings at multinational companies. The multinational companies selected will be American companies based in Colombia. This would allow NIU students to have an insight on how production processes are influenced and affected by cultural factors.

**PROGRAM AUDIENCE:** Space is limited and qualified applicants will be accepted on a first-come-first-serve basis. Both undergraduate and graduate students from the College of Engineering are welcome to participate in the program. Non-NIU students are also encouraged to apply.

**INSTRUCTION METHOD:** Students will receive instruction in the form of lectures and labs. ULS has the infrastructure and equipment needed for a good completion of the course. Most of

the topics will taught by the NIU instructor, and a couple of them will be taught by an instructor from the host university.

For ISYE 480/580, *Simulation Modeling and Analysis*, there will sessions every day of 3 hours each (including breaks). During these sessions, students will have lectures and labs. Students from both universities will be mixed in order to promote diversity for the work in groups. Students will have quizzes, assignment and a final group project.

For ISYE 498/593, *Contemporary Topics in Industrial Engineering*, there will be visits to three companies. Students will be required to submit a written assignment related to each visit and a final group report. Especially important for students will be to learn about cultural issues that may influence manufacturing processes and production.

**PROGRAM ACADEMIC CREDIT:** For satisfactory participation in the program, participants will receive 3 semester hours of undergraduate or graduate credit in one of the following NIU courses.

#### UNDERGRADUATE CREDIT

ISYE 480 Simulation Modeling and Analysis	3 semester hours
<p><b>Description:</b> Design and analysis of industrial systems using computer simulation models. Choice of input distributions, generation of random variates, design and construction of simulation models and experiments, and interpretation of generated output.</p> <p><b>Prerequisite:</b> ISYE 335 or STAT 350 or UBUS 223, and CSCI 240 and ISYE 371; or consent of department.</p>	

#### GRADUATE CREDIT

ISYE 580 Simulation Modeling and Analysis	3 semester hours
<p><b>Description:</b> Design and analysis of industrial systems using computer simulation models. Choice of input distributions, generation of random variates, design and construction of simulation models and experiments, and interpretation of generated output.</p> <p><b>Prerequisite:</b> ISYE 335 or STAT 350 or UBUS 223, and CSCI 240 and ISYE 371; or consent of department.</p>	

**INDEPENDENT STUDY/RESEARCH PROJECT:** Individuals desiring to earn *three additional hours* of undergraduate or graduate credit may do so by engaging in an independent study-research project under the direction of Professor Reinaldo Moraga, program director. The research report should be at least 10 pages for undergraduate credit and 20 for graduate credit.

**Requirements for Independent Study/Research Project:** In order to obtain approval from program director, applicants must:

1. Relate the project to a topic or subject introduced during the program.
2. Complete and submit the project for final evaluation to program director no later than July 15, 2019.

Participants who enroll for the independent research project will receive 3 semester hours of credit in one of the following NIU courses:

UNDERGRADUATE CREDIT	
<b>ISYE 498 Contemporary Topics in Industrial Engineering</b>	<b>3 semester hours</b>
<b>Description:</b> May be repeated to a maximum of 9 semester hours, with no more than 3 hours in the same topic area. <b>Prerequisite:</b> Consent of department.	

GRADUATE CREDIT	
<b>ISYE 593 Contemporary Topics in Industrial Engineering</b>	<b>3 semester hours</b>
<b>Description:</b> May be repeated to a maximum of 9 semester hours, with no more than 3 hours in the same topic area. <b>Prerequisite:</b> Consent of department.	

**APPLICATION AND ADMISSION PROCEDURES:** The program is open to undergraduate and graduate students who meet the NIU general admission requirements, and who are interested in Simulation. Currently enrolled students must meet College of Engineering and Technology Engineering course GPA requirements. Graduate level students must also meet NIU Graduate School admission, course and GPA requirements.

Students must be in good academic and disciplinary standing at the time of application. Students who are on academic or disciplinary probation are not eligible to participate in study abroad programs. **Applicants must participate in the *entire* program and satisfy NIU undergraduate or graduate admission and course requirements.**

NIU students cannot have any encumbrances against their NIU records. Any encumbrances placed on a student's records by NIU (i.e., the Graduate School, Undergraduate Admissions, Bursar's Office, Accounts Receivable, Registration and Records, Office of Student Conduct, Health Services, Parking Services, etc.) must be cleared before a student is granted admission to a study abroad program.

For any student to be admitted into a study abroad program, an applicant's transcript must be on file with the NIU Study Abroad Office.

Students who are currently enrolled at NIU, or who have previously enrolled at NIU, do not need to request an official transcript; SAO will make this request on behalf of the applicant.

**Non-NIU Students:** Non-NIU Students who want to participate in the program and earn academic credit from NIU, who have not previously enrolled at NIU, should send a copy of their transcript (official or unofficial) as soon as possible to the SAO.

Students can send transcripts to the SAO via email to [niuabroad@niu.edu](mailto:niuabroad@niu.edu), fax a copy to (815) 753-0825, or mail or hand-deliver a copy of their transcript to the following address:

Northern Illinois University  
Study Abroad Office  
Williston Hall 417  
DeKalb, IL 60115

**APPLICATION:** Click [Mobility Program in Industrial Systems Engineering in Colombia](#) or visit the NIU Study Abroad Office website at <https://niu.studioabroad.com> (and search for the program country or program name) to begin the online application process for this program. The online process provides guidance on requesting information, advising, or applying for the program. Please note that at the time of application, applicants will be expected to submit a signature verification form and copy of their ID to the Study Abroad Office. More detailed instructions can be found on the <https://niu.studioabroad.com> website or by contacting the Study Abroad Office at (815) 753-0700 or [niuabroad@niu.edu](mailto:niuabroad@niu.edu).

**\$200 APPLICATION FEE/DEPOSIT:** A \$200 application fee/deposit is required of all applicants. The \$200 consists of \$100 for the non-refundable application fee and \$100 for a program deposit. Both the application fee and the deposit will be applied to the total balance of the program cost. The \$100 deposit is refundable only if the participant withdraws prior to the withdrawal deadline indicated on the program materials or for medical reasons verified by a physician if the withdrawal takes place after the withdrawal deadline.

The \$200 application fee/deposit will be charged to NIU students' NIU Bursar's account. (Checks and money orders cannot be accepted from NIU students.) Non-NIU students must submit a check or money order in the amount of \$200. More detailed instructions can be found on the website.

**IMPORTANT** – All applications will be categorized as “Pending – No Deposit” until the \$200 application fee/deposit has been received (or, in the case of non-NIU students, once a check has been received). The Study Abroad Office will not consider or process applications without the \$200 application fee/deposit. In order to reserve your place in the program you must submit the \$200 deposit within 14 days of application. After 14 days applications without a deposit will be changed to inactive.

## **APPLICATION DEADLINE:**

**February 1, 2019**

**Please read the following carefully.**

**Space in this program is limited, so early application is recommended.** Qualified applicants will be accepted on a first-come-first-serve basis.

**Upon acceptance into the program, applicants must change their status to “Committed” and complete all post-decisions items on the Study Abroad Portal in order to be considered an active participant and reserve their place in the program.**

**Applicants who have not changed their status to “Committed” will be withdrawn from the program.**

**ACCOMMODATIONS AND MEALS:** Participants will reside with host families in single bedded rooms with private bathrooms and will be provided two meals daily throughout the period of residency.

**AIR TRANSPORTATION:** Individuals will be responsible for making their own air travel arrangements between the U.S. and Bogotá and for purchasing their tickets from a travel agent or airline of their choice. (Travel insurance is recommended.) Participants should plan their departure so they arrive in Bogotá on Sunday, June 9.



For information regarding airfares and airlines students may wish to check-out additional airfare sites on the Internet.

**Important** - The Study Abroad Office advises all participants that flight reservations for this program should not be booked until:

- a. After the February 1, 2019 application deadline
- AND**
- b. The SAO has accepted the minimum number of participants needed to operate this program.

This advisory is given so that participants do not find themselves financially responsible for airline tickets should it be necessary to cancel the program. (See section entitled, **CANCELLATION OF THE PROGRAM**)

**LAND TRANSPORTATION:** For program-related travel the group will travel by coach. This transportation is provided as part of the NIU program cost.



**PASSPORT: --IMPORTANT--** All participants must have a passport by **February 1, 2019** in order to participate in this program. *Important Note: U.S. passports must be valid SIX months beyond the intended stay overseas.* Individuals who do not currently possess a valid passport should apply for one immediately. Information on acquiring a passport is available at the U.S. State Department's Website: <https://travel.state.gov/content/passports/en/passports.html>. U.S. passport holders do not need special visas for this program. Non-U.S. passport holders may need special visas for travel in Colombia and are responsible for obtaining all necessary visas.

**VISA:** Students coming to Colombia from a country with which there is a visa exemption agreement, such as the United States, and for under 90 days have to enter the country with the entry permit PIP2 which will be given at the airport. Students from a country with which there is not a visa exemption are responsible for obtaining a visa as well as consulting with the NIU International Student and Faculty Office regarding re-entry to the U.S.

**PASSPORT PHOTOS:** Passport photo(s) can be taken in the NIU Study Abroad Office. Photos are \$5.00 for two photos. Photos must be purchased in multiples of two. Photos are usually developed while you wait. Photos can be paid for with exact cash, personal check or charged to your NIU bursar account. Study Abroad Office hours are 8:00 a.m. – 12:00 p.m. (closed over the lunch hour) and 1:00 – 4:30 p.m. It is strongly recommended that students get an extra pair of photos taken to keep on their person in case of a missing or stolen passport.



**HEALTH REQUIREMENTS/VACCINATIONS:** No immunizations are needed to stay in Bogotá and its surroundings. However, if students wish to travel before or after the beginning of the program to any of the following regions: *La Guajira, Norte de Santander, Putumayo, Llanos Orientales, Amazon, Sierra Nevada de Santa Marta and the Atlantic Coast*, they must have the vaccine against yellow fever.

**Zika virus:** Regarding any concern about the Zika virus in Colombia, because Bogotá and the ULS campus are located 2600mts/8530 ft above sea level, the risk of getting the virus from a mosquito is greatly reduced. Per the Center for Disease Control, “The mosquitoes that spread Zika usually do not live at altitudes above 6,500 feet (2,000 meters) because of environmental conditions. Check the [map of areas with risk of Zika](#) to see if your destination is above the altitude of 6,500 feet because you may be at minimal risk of getting Zika from a mosquito if you will only be in areas of high altitude.” Visit the [Center for Disease Control](#) website for more information.

Visit the Center for Disease Control website for information regarding students traveling on [Study Abroad programs](#) and [Health Information for Travelers to the Colombia](#).

Students should also seek advisement from the [DeKalb County Health Department \(DCHD\)](#) for immunization and travel health information. The DCHD can administer most immunizations. Contact the DCHD at least eight weeks before the program begins to allow time for immunizations to take effect. Some vaccines need to be given over a period of months, so participants in this program must START EARLY!



**NIU INTERNATIONAL TRAVEL INSURANCE PLAN:** Students will be enrolled in the NIU International Travel Insurance Plan through ACE. This plan is required for participation in an NIU study abroad program and will be billed your MyNIU account. It is not possible to waive this mandatory insurance. Coverage will begin two days prior to the program start date and end two days after the official program end date.

**NIU PROGRAM COST:** The program cost pays for the following cost related services:

- 1) Host family accommodations and two meals daily while the group is in Colombia.
- 2) Program-related land transportation in Colombia
- 3) Admission fees to cultural and historical sites visited as part of the daily schedule
- 4) Three or six hours of undergraduate or graduate credit
- 5) NIU International Travel Insurance

**PROGRAM COST: \$2,805\***

\*This amount represents the total in charges and fees that will be paid to NIU for this program. Please note that the following charges will post individually on your MyNIU account:

- Study Abroad Program Charge
- Instructional Cost
- NIU Academic Program Enhancement Fee (if applicable)

All prices quoted are subject to change. The information contained in the program documents and forms is presented in good faith and is believed to be correct as of the date presented. Northern Illinois University reserves the right to amend, modify, revise, or delete any information appearing in these documents, including but not limited to the cost of the program.

Non-NIU students should consult with their home institutions regarding additional costs that may apply to study abroad. Non-NIU students are responsible for any study abroad charges imposed by their home institution.

**ADDITIONAL COSTS TO PARTICIPANTS:**

- Airfare
- Cost of acquiring a passport (approximately \$130, including 2 passport pictures).
- Passport size photos.
- Additional costs associated with obtaining a visa for non-U.S. passport holders.
- Immunization fees (*if immunizations are required*)
- \$40 Undergraduate application fee for non-NIU undergraduate students or \$10 Student-at-Large application fee for graduate-level students.
- Independent travel and visa costs associated with independent travel.
- Expenses for free-time pursuits and purchases of a personal nature.

**FINANCIAL AID:** As a participant in a study abroad program through NIU, applicants may be eligible for: Pell Grant, SEOG, Perkins Loan, PLUS Loan, Subsidized or Unsubsidized Stafford Loan, MAP Award or you're privately awarded scholarship with consent of awarding organization. Tuition waivers do not apply.

If you are an NIU student and plan to apply for aid or loans to supplement this study abroad program you must contact the NIU Financial Aid and Scholarship Office in Swen Parson 245, (815) 753-1395 to discuss your current aid package and what you might be eligible for during the Summer term. Questions regarding the program budget can be directed to the Study Abroad Office, [niuabroad@niu.edu](mailto:niuabroad@niu.edu), (815) 753-0857.

Please visit <http://www.niu.edu/studyabroad/resources/index.shtml> for information on financial resources for study abroad.

**WITHDRAWAL FROM THE PROGRAM:** Applicants withdrawing from the program after February 1, 2019 will not be refunded the \$200 program deposit.

Applicants withdrawing from the program after this date will also be held accountable for any funds obligated to overseas vendors and agents on the applicant's behalf. This provision is in effect even if the applicant has not submitted the \$200 deposit or additional payments, and if the applicant is applying for financial aid.

If the applicant must withdraw after February 1, 2019 for medical reasons, funds obligated on their behalf to overseas vendors can only be refunded if:

- 1) The request is submitted to the Study Abroad Office in writing and accompanied by a signed statement stating that travel is not advised from a physician on the physician's letterhead; **and**
- 2) NIU is able to obtain refunds from overseas vendors and agents; **and**
- 3) The program still has the minimum number of participants required to operate.

**CANCELLATION OF THE PROGRAM:** The Study Abroad Office reserves the right to cancel this program if the minimum required enrollment is not attained. If, prior to the commencement of the program, a U.S. State Department Travel Advisory is issued for Colombia, all applicants will be notified promptly of the warning and the possibility of cancellation of the program. If, during the course of the program, a U.S. State Department Travel Advisory is issued for Colombia, students will be promptly notified of the warning and the advisability of canceling the program.

All participants will be asked to review relevant sources of essential information so they are fully informed of the content of current travel warnings for Colombia. Participants will discuss the risks with the program director and relevant CEET administrators.

Participants will be required to register with the US Embassy or Consulate in Colombia before or immediately upon arrival in country and to keep the Embassy or Consulate informed of their whereabouts while in-country.

The information contained in the program documents and forms are presented in good faith and is believed to be correct as of the date presented. Northern Illinois University reserves the right to amend, modify, revise, or delete any information appearing in these documents, including but not limited to the cost of the program.

**NORTHERN ILLINOIS UNIVERSITY RESERVES THE RIGHT TO ALTER  
OR CANCEL THIS PROGRAM AS MAY BE DEEMED NECESSARY!**