Studying at Southern Illinois University

Edwardsville

Advisor: Prof. Dr. Manfred Krause

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Summer Semester 2001
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<th>Description</th>
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<td>Accounting</td>
</tr>
<tr>
<td>CDC</td>
<td>Career Development Center</td>
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<tr>
<td>CMIS</td>
<td>Computer Management Information Systems</td>
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<tr>
<td>Co-op</td>
<td>Cooperative Education Program</td>
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<tr>
<td>CS</td>
<td>Computer Science</td>
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<tr>
<td>ECON</td>
<td>Economics</td>
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<tr>
<td>ENG</td>
<td>English</td>
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<tr>
<td>ERM</td>
<td>Entity Relationship Model</td>
</tr>
<tr>
<td>FA&amp;H</td>
<td>Fine Arts and Humanities</td>
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<tr>
<td>FIN</td>
<td>Finance</td>
</tr>
<tr>
<td>GBA</td>
<td>General Business Administration</td>
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<tr>
<td>HIST</td>
<td>History</td>
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<tr>
<td>HTML</td>
<td>Hypertext Markup Language</td>
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<tr>
<td>KBES</td>
<td>Knowledge Based Expert Systems</td>
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<tr>
<td>MATH</td>
<td>Mathematics</td>
</tr>
<tr>
<td>MIS</td>
<td>Management Information Systems</td>
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<tr>
<td>MNGT</td>
<td>Management</td>
</tr>
<tr>
<td>NA&amp;M</td>
<td>Natural Science and Mathematics</td>
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<tr>
<td>PHIL</td>
<td>Philosophy</td>
</tr>
<tr>
<td>POLS</td>
<td>Political Science</td>
</tr>
<tr>
<td>PROD</td>
<td>Production</td>
</tr>
<tr>
<td>REJIS</td>
<td>Regional Justice Information Service</td>
</tr>
<tr>
<td>SIU</td>
<td>Southern Illinois University</td>
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<tr>
<td>SIUC</td>
<td>Southern Illinois University Carbondale</td>
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<tr>
<td>SIUE</td>
<td>Southern Illinois University Edwardsville</td>
</tr>
<tr>
<td>SPCH</td>
<td>Speech</td>
</tr>
<tr>
<td>SQL</td>
<td>Structured Query Language</td>
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</table>
1 Introduction

Since 1999, the University of Applied Sciences and Arts’ Department of Business Administration has an exchange program with the School of Business at Southern Illinois University Edwardsville (SIUE). The exchange program allows four German students from the Department of Business Administration to study one semester at SIUE.

I was lucky, and had a chance to take part in the exchange program during the summer semester 2001. Through my involvement with SIUE’s Career Development Center\(^1\) (CDC), I got a chance to complement my studying abroad with practical experience at St. Louis County Government.

This report describes my experiences in the USA as an exchange student. Chapters 1\&2 give the reader an overview of Southern Illinois University (SIU) and Southern Illinois University Edwardsville as a part of SIU. Chapter 2, in addition, contains more detailed information about SIUE campus and the program of study - Management Information Systems (MIS).

Chapter 3 describes my experiences while attending SIUE, for example, our arrival, personal impression and observations about SIUE. It also gives a brief description of completed courses.

Chapter 4 highlights my Cooperative Education Program (co-op\(^2\)) with St. Louis County Government’s Department of Highways and Traffic. It:

- Gives an overview of St. Louis County Government and the Department of Highways and Traffic

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\(^1\) CDC is an intern university facility that assists SIUE students with the entire job application process including job search strategies, resume development, interviewing techniques, etc.

\(^2\) Co-op is a career related, paid employment while attending a university.
- Describes my responsibilities during the summer employment
- Provides the evaluation of the co-op

Personal observations and evaluation of both studying and working in the USA are summarized in **Conclusion**.

2 Southern Illinois University

Southern Illinois University is composed of two institutions, Southern Illinois University Carbondale (SIUC) and Southern Illinois University Edwardsville (SIUE). SIUC locations include a campus in Carbondale, a School of Medicine at Springfield and a campus in Niigata, Japan. SIUE comprises a campus in Edwardsville, a School of Dental Medicine at Alton and a center in East St. Louis (see figure 1).

![Figure 1: Structure of Southern Illinois University](image-url)
SIU was founded in 1869 as a teacher’s college under the name “Southern Illinois Normal University”. In 1947, reflecting the University’s academic and geographical expansion, the name was changed to Southern Illinois University.

Today, SIU is one of the largest public universities in the state of Illinois with an annual operating budget over $557 million. Around 40% of the total budget comes from Illinois taxes, which makes SIU a rather inexpensive place to study as compared to other US universities. The University offers a wide range of academic programs and degrees in more than 27 fields. It enrolls more than 34,000 students from all parts of US and the world³.

A nine-member Board of Trustees governs Southern Illinois University. The Illinois Governor with the approval of the Senate appoints seven of the nine members for a six-year period. Two student members (one from each university) are elected from SIUE and SIUC for a one-year period. The President of SIU is its chief executive officer and reports to the Board of Trustees. The Chancellors of SIUE and SIUC report directly to the President and are responsible for the internal operation of their universities⁴.

³ Source: http://www.siue.edu/IRS/factbk01/Fb01GE.pdf, (accessed on August 26, 2001).
3 Southern Illinois University Edwardsville

3.1 Overview

Southern Illinois University Edwardsville was founded in 1957 with an establishment of two “centers” in Alton and East St. Louis. By 1959 the number of enrolled students significantly exceeded the physical facilities and services the University could offer. That led to an establishment of a new campus five kilometers from the town of Edwardsville in the fall of 1965.

The University maintains an annual operating budget over $137 million and enrolls more than 12,000 students from 101 Illinois counties, 47 other US states, and 58 nations. It maintains 43 undergraduate and 53 graduate and professional programs, which are offered through six academic units: the Schools of Business, Dental Medicine, Education, Engineering, Nursing, and the College of Arts and Sciences. The University has about 2,200 employees in faculty and staff. It additionally provides employment opportunities to 441 graduate students who serve as graduate assistants.

5 Source: http://www.siue.edu/IRS/factbk01/Fb01GE.pdf, (accessed on August 26, 2001).
3.2 SIUE Campus

The SIUE campus is known as one of the most beautiful college campuses in the Midwest. It is built on 2,660 acres of land, woods and lakes, just twenty minutes away from a major American city – St. Louis, Missouri.

To give the reader a general overview of the campus, I would like to describe briefly its main facilities, administrative and classroom buildings.

*Rendleman Hall* houses most of the administrative offices: Vice Chancellor’s Office, Provost’s Office, Office of Graduate Studies & Research, Bursar’s Office (student financial services), Housing Office, Health Services, Post Office, Interna-

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6 Source: [http://www.siue.edu/FACILITIES/arch1/arch.html](http://www.siue.edu/FACILITIES/arch1/arch.html), (accessed on 29/08/01).
Morris University Center is the place where all kinds of special events take place. It houses International Student Services Office, a bookstore, Union Station (convenience store) and an art gallery. There are also different recreation facilities (bowling, billiards and video games) and a cafeteria in the basement.

Alumni and Founders Halls house the Schools of Business, Education, Nursing, and the Career Development Center. Both buildings are equipped with several computer labs.

Lovejoy Library is named after the abolitionist newspaper editor, Elijah Lovejoy. It serves as a source of information and resources for personal research. Additionally, it provides online access to bibliographic databases, a computer lab, textbook rental for undergraduate students, SIUE email account and other services.

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7 Source: [http://www.siue.edu/FACILITIES/arch1/7018.htm](http://www.siue.edu/FACILITIES/arch1/7018.htm), (accessed on August 29, 2001).
Students enjoy an outstanding fitness center equipped with numerous sports facilities such as a swimming pool, gymnastics and dance rooms, a 200-meter jogging track, weightlifting facilities, basketball/volleyball courts, showers and saunas, etc. A lot of other leisure activities such as dance, theater performances, and musical presentations complement students’ outside of classroom life.

The University provides on-campus housing for students. Woodland, Prairie and Bluff Halls, just five minutes walk from main administrative and classroom buildings, house undergraduate (especially freshman) students. For graduate students and family residents the University offers apartments at the Cougar Village. The apartments are located a bit farther from main campus buildings. Students usually walk (around ten/fifteen minutes) or use Cougar Shuttle – free bus service on campus - to access their classrooms. Commons Building of the Cougar Village has a computer lab, a laundry, a television lounge and a small convenience store with a cafeteria.

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8 Source: [http://www.siue.edu/FACILITIES/arch1/7001.htm](http://www.siue.edu/FACILITIES/arch1/7001.htm), (accessed on August 29, 2001).
3.3 Program of Study – Management Information Systems

Management Information Systems (MIS) is a 4-year undergraduate program offered by the Department of CMIS\(^9\). The objective of the program is to prepare students develop business-related information systems. Students obtain a “Bachelor of Science, Major in Management Information Systems” degree from the School of Business.

To graduate, students must complete a minimum of 124 semester hours. The program includes General Education Requirements (Skills, Fine Arts & Humanities, Natural Sciences & Mathematics, Social Sciences courses), General School of Business and Management Information Systems Requirements (see table 1). The School of Business Advisement and Counseling Office helps students to choose and schedule courses to meet the program requirements.

<table>
<thead>
<tr>
<th>Academic Requirements</th>
<th>Hours</th>
<th>Area Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skills: Written Expression: ENG 101, 102</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Option A: SPCH 104 or 105</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MATH 106 or PHIL 106</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CS 140 (also in the Computing Core)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Social Science: Introductory: HIST 111b, ECON 111</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Advanced: ECON 112, POLS 112 (POLS 112 satisfies the constitution requirement)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Fine Arts &amp; Humanities (FA&amp;H): At least one course must be a Survey of Literature. Introductory: Any FA&amp;H course satisfying the requirement</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

\(^9\) Computer Management Information Systems.
### Management Information Systems Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced: Two courses satisfying requirement</td>
<td>6</td>
</tr>
<tr>
<td>Natural Science and Mathematics (NS&amp;M): Introductory: MATH 120, and any other NS&amp;M introductory course</td>
<td>6</td>
</tr>
<tr>
<td>Advanced: Any course satisfying the requirement</td>
<td>3</td>
</tr>
<tr>
<td>Interdisciplinary Studies: GBA 300 (also listed under General Business)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Computing Core</strong></td>
<td>27</td>
</tr>
<tr>
<td>CS 140, 150, 151, MIS 270, 360, 450, 464, 468, 470, and one elective from the following list: CS 250, 312, 314, 320, 407, 438, MIS 460, 472, 488, 490, and 495. (Note: CS 140 is listed above under General Education Skills and is not included here in the hour count. MIS 470 meets the Business Research Requirement.)</td>
<td></td>
</tr>
<tr>
<td><strong>Senior Assignment (fulfilled by completing GBA 490)</strong></td>
<td>0</td>
</tr>
<tr>
<td>(Note: GBA 490 hours are included under the General Business Requirements area listed below.)</td>
<td></td>
</tr>
<tr>
<td><strong>General Business Requirements</strong></td>
<td>36</td>
</tr>
<tr>
<td>ACCT 200, 210 FIN 320, GBA 300, 400, 490 (2 hours), MIS 342, MG 300, MNGT 340, 341, 441, MS 251 (4 hours), PROD 315. (Note 3: GBA 300 is listed above under General Education Interdisciplinary Studies and is not included here in the hour count.)</td>
<td></td>
</tr>
<tr>
<td><strong>Free Electives</strong></td>
<td>13</td>
</tr>
<tr>
<td><strong>Minimum Hours Required:</strong></td>
<td>124</td>
</tr>
</tbody>
</table>

Table 1: Management Information Systems Requirements

Management Information Systems is comparable to the academic program Wirtschaftsinformatik (WI) at Fachhochschule Hannover (FHH). Both programs:

10 Source: [http://www.siue.edu/BUSINESS/depart/mis/program.htm](http://www.siue.edu/BUSINESS/depart/mis/program.htm), (accessed on 29/08/01).
• Require students to complete general education/business administration courses during the first two years of their studies and concentrate on MIS courses in the advanced studies.
• Include elective subjects.
• Schedule the normal period of studies to four years.
• Offer academic advising to help students choose and schedule their courses.

There are also some differences in the organization of two academic programs:
• As compared to MIS, WI offers three areas of specialization in advanced studies, which can be marketing/sales, organization and production.
• The program Wirtschaftsinformatik includes optional foreign language courses (English, Spanish, French, Russian, etc.), whereas MIS at SIUE requires students to complete two English courses.
• Internships are optional for MIS students at SIUE. WI students, on the contrary, are required to complete two internship semesters during their studies.

4 My Studies at Southern Illinois University Edwardsville

4.1 Arrival, Orientation Week

On January 2, 2001, four of us (Birgit, Bastian, Marcus and me) arrived at Lambert-St. Louis International Airport where we were met by two very friendly student assistants from SIUE. On our arrival to the campus, we checked in at our Cougar Village apartments, met the International Student Advisor and International Exchange Programs Coordinator who advised us on how and where to take care of our paper formalities. We were also given a care package that included two sheets, a bath towel, a pillow, a washcloth, and a campus map. In
addition, we could borrow various household items (dishes, cooking utensils, blankets, etc.) at the School of Business for the period of studying at SIUE.

By the time we arrived, the International Student Orientation Week had already started. The orientation week (as the name itself implies) helps new students to get started with their studies at SIUE. Different programs are held with the objective to inform new students about on-campus events, employment opportunities, SIUE services, etc. SIUE offers the Hospitality Program for international and exchange students where they can meet and choose American host families. Those families help them to get to know the American culture.

The orientation week was busy with getting ready for studies. We registered for the chosen classes at the Academic and Counseling Office, applied for SIUE email accounts, received textbooks from the library and registered with the Health Services Center. During that week we also met a lot of other international and American students. They showed us around Edwardsville, helped to buy necessary household items and groceries. At the weekend we made our first “tour” to downtown St. Louis.

We were very heartily met at SIUE. I found both SIUE personnel and students to be very kind and helpful. I would especially like to thank the International Exchange Programs Coordinator at SIUE, Loretta A. Dieckman, who made our stay at SIUE even more enjoyable, and was always there for us.

4.2 Completed Courses

To meet visa requirements and be eligible for studying at American universities, international students must be enrolled in at least four three-credit hour courses. Undergraduate students (e.g. those pursuing a Bachelor’s degree) may choose from 100- to 400-level courses. To register for desired courses, students must
schedule an appointment with the Advisement and Counseling Office. Academic Advisors help students to choose courses and make their schedules. They check whether a student has prerequisites for a particular course (i.e., certain skills and knowledge, completion of some other courses), make sure that classes do not conflict with each other, etc. If a desired class is full, students can add their names to its “waitlist”. Students should come to the first meeting of the class they registered for. If registered students do not attend the first class meeting, their places can be given to “waitlisted” students.

During the first few weeks of the semester, classes can be dropped or added. If classes are dropped after the deadline, students do not get a refund of fees. To add, drop or change a class, students must come to the Advisement and Counseling Office.

During the spring semester 2001, I completed the following courses: Principles of Marketing (MKTG 300), Database Design (CMIS 450), Knowledge-Based Systems (IE 427) and Operations Research (OR 440). To give the reader an idea about the nature of the courses, I would like to describe them briefly.

The course Principles of Marketing is offered through the Management and Marketing Department and taught by Monica D. Kutan. The objective of this course is to introduce students to the contemporary marketing environment with emphasis on the growing influence of the Internet. The course concentrates on the following topics:

- Marketing planning, information, and segmentation
- Buyer behavior and relationship marketing
- Product, distribution, pricing, and promotion strategies

Students are given four multiple-choice exams and a team project during the semester. Exams cover material in the textbook, lectures, homework and count for 60% of the total grade. In the project, students in teams of four develop and present a poster-board explaining one of the topics discussed in class. The project
brings 25% of the total grade. For homework assignments, attendance and participation in class, students earn the remaining 15%.

One of the most interesting courses I attended at SIUE was Database Design taught by Dr. Douglas Bock. This course is comparable to the DB/DC-Systems offered by Prof. Dr. Andreas Hausotter at the FHH. It covers basic database concepts and terminology, conceptual design (ERM\textsuperscript{11}) and relational data modeling principles, including normalization, physical design principles (index design, file access methods, basic data structures) and basic Structured Query Language (SQL). Students are required to complete seven projects during the semester. The first six projects require students to create tables, forms, reports, queries and macros, and implement a basic database application using MS Access. The last project provides students experience writing SQL queries using Oracle. Students are also given three exams that cover material from lectures, the textbook and project assignments. Examinations include short answer, multiple-choice and true-false questions; they may also require students to draw a diagram or a model.

The courses Knowledge-Based Systems and Operations Research are both offered through the School of Engineering and taught by Dr. Emmanuel S. Eneyo and Dr. Cem S. Karacal, respectively.

Knowledge-Based Systems provides students with an overview of the general concepts of Artificial Intelligence and concentrates on the various elements of expert systems. There is one examination in the course, which consists of multiple-choice, true/false and short answers (one/two paragraphs) questions. Students complete three individual mini-projects during the semester. The projects require students to create small-scale knowledge-based expert systems (KBES) to solve particular engineering problems. Students can use either VP-EXPERT or

\textsuperscript{11} Entity Relationship Model.
KAPPA-PC as their development tools. For grading, students submit created software and a project report. In the term project students are required to select a particular problem, preferably in the area of their academic disciplines, and produce a KBES to solve it. The term project includes creating an expert system, presenting and demonstrating it to the class, and writing a project report.

Another class I attended with pleasure was Operations Research. This course introduces students to the mathematical modeling techniques to determine optimum solution of constrained resource allocation problems. The course covers:

- Modeling and problem formulation
- The simplex method
- Duality theory and sensitivity analysis
- The transportation, trans-shipment, and assignment problems
- Network analysis

To encourage and monitor consistent class performance along with improved understanding of the material, students are given quizzes every two weeks. Students also complete a term project where they are required to formulate and solve a set of problems from manufacturing, service and distribution industries using the software package LINDO, and perform sensitivity analysis. The comprehensive final examination at the end of the semester covers all the topics discussed during the semester.

### 4.3 Observations

The American system of higher education seems to be more strict and regulated as compared to the German one, and reminds the school system. For example, in the courses I have taken, students do not have to do literature research for their classes. They just come to the library and receive the textbook that will be used in the class they registered for. Instructors often monitor class attendance, give students homework assignments and regular quizzes. If students submit as-
signments after the due day/time, they receive certain deductions from their grade. Part of the reason is that the absolute majority of American students start college direct after high school and are very young (17-18 years old). As a result, many of them to a certain degree lack independence and self-organization as compared to German students. This rather strict system of education helps them to succeed especially in the first years of their studies.

There are also some differences in the system of grading. In the majority of cases, German students take one examination (oral or written exams, presentations, etc.) at the end of the semester, which determines their grade for an attended class. In American universities, on the other hand, the final grade for a class is composed of several parts: projects, quizzes, homeworks, presentations, etc. In lower-level classes students get some points just for attending a class. As a result, even if a student does not do well on a final exam, he/she does not necessarily fail in a class. That student still has a chance to get a good grade if his/her performance during the semester was good.

The above-mentioned differences apply more to undergraduate students though. Graduate students\(^\text{12}\) have a tough competition, and must complete a lot of independent work and research.

As SIUE is a rather inexpensive place to study, it attracts a lot of international students. Cultural differences sometimes create problems, but at the same time broaden one’s knowledge about other parts of the world and help to develop one’s communication skills.

The SIUE campus has a very warm and friendly atmosphere. Both students and instructors are very outgoing and sociable. It is easy to meet people and make friends with them. The relationship between students and professors is friendly

\(^{12}\) Graduate students are those pursuing a Master's degree.
and informal. They call each other with their first names, and sometimes go out together. As in Germany, instructors offer help if students have problems with the understanding of the material. Very often, they help students to find internships or jobs.

5 Cooperative Education Program with St. Louis County Government

Internship in a foreign country is a unique experience, and is very important and interesting as a part of one’s studies. It helps one to get to know a foreign country, its culture, customs and inhabitants. It also helps to improve language, social and communication skills. Through this experience one can find out a lot of things about one’s own self and develop thinking in a new different environment. Plus, it is a lot of fun.

Many students coming to the USA seek an internship that offers practical, workplace experience. I was no different. On my arrival, I revised my resume and cover letter, and began applying for jobs. In May 2001, through my involvement with SIUE’s Career Development Center, I started a Cooperative Education Program with St. Louis County Government’s Department of Highways and Traffic.
5.1 St. Louis County Government

5.1.1 Overview

St. Louis County was established on October 1, 1812. The County’s Government (named County Court at that time) was founded in 1876 after the separation of the City of St. Louis from St. Louis County.

St. Louis County Government (County Government or County for short) has nine elective positions: the County Executive, the seven County Council Members, and the Prosecuting Attorney. The County Executive with the approval of council members appoints department directors, which there are eleven of. In addition, the County Government has several judges appointed by the Governor (see figure 5). The City of Clayton is the County Seat. Over 4000 thousand people are employed at the County Government.
Figure 5: St. Louis County Government structure
(source: http://www.stlouisco.com/budget/Overview.pdf, accessed on 26/08/01.)
The County services can be divided into three categories:

1. Services to all St. Louis County
2. Direct services to unincorporated areas
3. Services to incorporated areas (municipalities) by contractual agreement

Major services provided by the County are:

- Tax collection and assessment
- Justice and judicial services
- Parks and recreation
- Planning, construction and maintenance of roads
- Human services programs
- Public health and environmental services
- Research and evaluation of information, development of a general plan for the County
- Planning, construction and maintenance of county buildings
- Police protection
- Economic development

St. Louis County Government does not have its own IT department. In January 1998, the County consolidated its data processing functions and personnel with REJIS, a data processing center serving governmental agencies in Missouri. Major services provided by REJIS to the County include data center management, network management, disaster recovery, applications development/maintenance and information services consulting.

Each department has a network administrator and, based on its size, from one to seven or eight computer technicians. Their responsibilities include purchasing,

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14 REgional Justice Information Service.
installation/testing of software and hardware components, setting up system networks, performing help desk activities, etc.

5.1.2 Department of Highways and Traffic

I was employed as an Administrative Intern in the Department of Highways and Traffic, Division of Planning, and completed my co-op between May 21 and August 29, 2001 (13 weeks).

The Department has over 500 employees and is the fourth largest in the County. It is comprised of five divisions - Planning, Highway Design, Maintenance, Traffic and General Services. The Planning Division, among its other duties, is responsible for coordination and administration of information technology for Highways and Traffic. In addition to its administrative office in Clayton, the Department maintains five Maintenance Districts, Fleet and main garage located throughout St. Louis County.

Main services provided by Highways and Traffic are:

- Planning, construction and maintenance of arterial and residential roads
- Maintenance of bridges, sidewalks, drainage structures, driving surfaces
- Design and establishment of electric traffic signals
- Installation of traffic signs
- Snow and ice removal on County road system
- Management of the County Government-owned garages

\[\text{Source: http://www.stlouisco.com/hwyweb/}, \text{ (accessed on August 26, 2001).}\]
5.2 Job Application Process

In February 2001, while attending SIUE, I started applying for jobs. There were basically three different ways to do it:

1. Register with the Career Development Center (CDC) at SIUE and participate in its co-op program.
2. Look for jobs on my own, mostly on the Internet.
3. Ask instructors, whose courses I was taking, for assistance. Professors at American universities usually have very good contacts to companies and often help students to find temporary or permanent jobs.

Participating in CDC’s Cooperative Education Program turned out to be the most successful of them. The CDC lists job openings for all majors on its web site. Usually it is sufficient to submit a resume online to apply for a job. A standard cover letter from the CDC is attached to each application.

The co-op with St. Louis County Government was listed on CDC’s web site. After reading the job description (the County was looking for someone assisting in development of its Web pages and departmental databases) and visiting the company’s Web site, I got interested and decided to apply for the job. To complete the application process, I had to come to the CDC and fill out the application form.

During the last week of April I received a letter from the company notifying me that my application had been accepted. In order to confirm my acceptance of the co-op I had to call the Personnel Department and establish a starting date. The letter contained other important information as to the documents required, mode of dress, etc.
Surprising to me was the fact that the application was accepted without me ever being invited for an interview. Later on I learned that it was a standard procedure at St. Louis County Government, and summer students were never interviewed.

5.3 Responsibilities

My major duty was development of Intranet applications that enable the user to search for, view, enter, edit and/or delete data from a database. This assignment occupied almost all of my available time. In the remaining time, I designed small departmental databases to interact with Web applications, created tables, forms and reports using MS Access 2000. Furthermore, I assisted in PC hardware and software support as needed.

5.3.1 Development Of Intranet Applications

As with many other organizations, St. Louis County Government stores information in many different systems. This makes it difficult for employees to find out, what information is available and how to access it.

To solve this problem the County decided to develop Intranet applications and link them to their corresponding databases. This approach brings two major advantages:

1. Every user accesses the same database so that data redundancy and inconsistency are eliminated/reduced.
2. As applications are Web based, every employee with access to the Intranet can retrieve required information.

The tool used for designing Intranet applications was ColdFusion 5.0 from Allaire. ColdFusion is an application development tool that enables the creation of dynamic, interactive Web sites by connecting them to different data stores (i.e. databases, spreadsheets, ASCII delimited files).
Web Development Tool – ColdFusion 5.0

ColdFusion requires installation of the ColdFusion Application Server on the Web server that processes all ColdFusion specific commands. For managing and configuring the ColdFusion Application Server, Allaire provides a web based management tool called ColdFusion Administrator. ColdFusion files (called templates) are standard HTML files extended with programming constructs (i.e. loops, conditional operators), database commands and special formatting functions. A standard ColdFusion template has the following structure:

```html
<CFQUERY name="Detail" DataSource="#Streets#">
SELECT Street, Project, Number, Supervisor, TelNo
FROM Streets
WHERE StreetID = #StreetID#
</CFQUERY>

<HTML>
<HEAD> </HEAD>
<BODY> </BODY>
</HTML>
```

ColdFusion templates can be created using any text editor. Allaire provides for this purpose a powerful editor – ColdFusion Studio.

On the first day of my employment, I had to install and configure a copy of the ColdFusion Application Server for development and testing on my PC. There were no ColdFusion developers in the Department of Highways and Traffic. To get started with ColdFusion I could use books, online documentation and examples of existing applications. For any questions, I could email or call a ColdFusion developer from REJIS (see page 19). There were no specific deadlines set for becoming familiar with ColdFusion or accomplishing the given assignments.

Sample Assignments
**Application “Year 2001 Projects”**

Highways and Traffic keeps track of current maintenance projects. The Department had an application for searching and viewing data about the projects, which was linked to a Paradox table. My task was to transfer the data into MS Access and link the application to a new database.

ColdFusion uses *data sources* to interact with databases. A data source is a database one needs to serve up on the web. Data sources can be defined using either the ColdFusion Administrator or the Windows Control Panel. After verifying the connection to a database, the developer can use SQL commands to retrieve required data. The data is displayed using HTML and ColdFusion formatting functions.

The above-described steps (designing a database, defining it as a data source in ColdFusion, writing SQL statements and displaying the data) were the basic ones necessary for accomplishing the first assignment. The results of it are illustrated below.

![Figure 6: Year 2001 projects search](image)

Figure 6: Year 2001 projects search
Figure 7: Year 2001 projects search results

Figure 8: Year 2001 project details
To facilitate HTML design and site maintenance, the County’s Internet Committee prepared the series of Web page templates. Much of the complexity in templates was moved to JavaScript include files and Cascading Style Sheets (CSS), which made templates easier to work with.

“Automobile/Property Loss Report”

In case of an accident, the Safety Section of the Department has to fill out automobile/property loss reports and submit them to the insurance office. The insurance office would like to get a report within twenty-four hours of an accident. To enable the insurance office and the Safety Section to access information more quickly, Highways and Traffic decided to develop an application that allows to search for, enter, edit and delete report data online.

First, I interviewed the Safety Section employees to gather all necessary information for designing the database and the entry form. After designing a MS Access database, I developed three ColdFusion templates for searching and displaying report data. The next step was developing a form for entering and updating the data. The entry/update form was protected with a password so that only authorized users could access it.

Figure 9: Error message for the incorrectly entered password
A number of validation rules were implemented to make sure that the user enters correct information into the database. After validating the information, the entry/update is submitted to the database.

Figure 10: The user is prompted to correct fields that violated the validation rules

Figure 11: Confirming the user about submitted changes
The final step was implementing the deletion function. When finding a desired report, the user is asked to confirm if she/he really wants to delete it. By confirming the question, the specific report is deleted from the database.

Figure 12: Making sure the user really wants to delete a record

Figure 13: The specified report has been deleted
Six applications were developed during my employment at the County. All of them were more or less the same as the above-illustrated example.

5.3.2 Other Duties

My other duties included:

- Designing small databases for interacting with Web applications using MS Access (developing an ERM diagram, transforming entities into relational tables structures).
- Creating tables, forms and reports in MS Access.
- Transporting data from Corel Paradox to MS Access (the County had been using Corel Paradox 8 before 2001).
- Creating, modifying and maintaining static Web pages using HTML.
- Performing PC software and hardware support (installation of operating systems, software programs and hardware components).

The course Database Design (CMIS 450) I had taken before at SIUE provided a good basis for understanding relational database technology and working with MS Access. The knowledge I had acquired in that class was very helpful during my employment.

5.4 Evaluation of the Cooperative Education Program

In general, I can describe my co-op experience at St. Louis County Government as a positive and interesting one:

- I considerably improved my working knowledge of HTML, got familiar with Cascading Style Sheets and JavaScript.
- Working with ColdFusion, I learned and applied one of the approaches to bring a database on the Web. I also learned more about interaction be-
between Web servers and browsers, concepts like server-side and client-side form validation.

- I enhanced my knowledge about relational database technology in general and classroom experience with MS Access in particular. I also improved my knowledge of SQL.
- I worked independently and could make my own decisions most of the time.
- Working in a different cultural environment and speaking a foreign language helped me a lot to improve my communication and language skills.

All employees I had to work with were very friendly and helpful. That was very important, as I had to develop applications based on the information they supplied to me. My supervisors provided me with the necessary hardware/software and helped me with most of my questions.

Business atmosphere at St. Louis County Government is more informal as compared to my work experiences in Germany. Supervisors and employees use first names when talking to each other at work. Very often, they take part in a lot of social events together. It is also easier to meet people and make contacts.

Not having a contact person for ColdFusion questions in the department made it difficult at the beginning. Books and online documentation did not always provide answers for all the questions. Calling or emailing the ColdFusion developer from REJIS to get help usually took a long time and slowed down the process of development.
6 Conclusion

In conclusion, I want to say that my experiences in the USA were very interesting, positive and productive.

Studying and working with people from different parts of the world helped me a lot to develop my communication skills and learn a lot about other countries, their traditions and inhabitants. I brushed up my English and learned a lot of American slang expressions.

My co-op with St. Louis County Government's Department of Highways and Traffic provided me with practical experience in America. During my employment I enhanced my theoretical knowledge and classroom experience with HTML and SQL. I also got familiar with such web technologies as Cascading Style Sheets and JavaScript.

I got familiar with the life in a different environment, and learned a lot about American culture, traditions and people. I also had a chance to do some traveling and enjoy the diversity and beauty of that country.

I am very glad that I had the opportunity to study and work in the USA, and would be happy to repeat this experience in the future. I would like to thank my advisor, Prof. Dr. Manfred Krause, for arousing my initial curiosity and interest about studying at SIUE, and Prof. Dr. Wolfgang Bechte for the organization of the exchange program.
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## Appendix

The following is a list of developed applications:

<table>
<thead>
<tr>
<th>Application Name</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispatch Log</td>
<td>Used by Highways dispatchers to keep a comprehensive log of incoming emergency calls.</td>
</tr>
<tr>
<td>Year 2001 Projects</td>
<td>Provides information to Highways employees and general public about current maintenance projects.</td>
</tr>
<tr>
<td>Street Maintenance Search</td>
<td>Used by civil engineering specialists to keep track of all streets maintained by the Department of Highways and Traffic.</td>
</tr>
<tr>
<td>Current Construction Streets List</td>
<td>Provides information to general public and Highways employees about construction going on in their neighborhood or on their streets.</td>
</tr>
<tr>
<td>Accident and Automobile/Property Loss Report Forms</td>
<td>Used by individual Highways employees and the Safety Section for submitting accident/property loss reports to the Risk and Insurance Office and the State of Missouri.</td>
</tr>
</tbody>
</table>

Table 2: List of Intranet applications developed during the co-op at St. Louis County Government