

Last, First Middle Student ID

DEGREES CONFERRED:

Bachelor of Science Awarded 14 Dec 2007

TRANSFER CREDIT:

StartEndCredits Title09/200003/200540 Seattle Central Community College09/200203/200410 Edmonds Community College

EVERGREEN UNDERGRADUATE CREDIT:

Start	End	Credits	Title
09/2005	12/2005	16	Introduction to Natural Science 5 - General Chemistry I with Laboratory 5 - General Biology I with Laboratory 5 - Precalculus with Laboratory 1 - Scientific Communication
01/2006	03/2006	6	Chemistry, General II 2 - General Chemistry Laboratory 4 - General Chemistry Lecture
01/2006	03/2006	4	Cells and Molecules 4 - Cellular and Molecular Biology
01/2006	03/2006	2	Statistics, Introduction to 2 - Statistics
04/2006	06/2006	6	Chemistry, General III 4 - Chemistry Lecture 2 - Chemistry Laboratory
04/2006	06/2006	3	Seeing is Knowing: From Data to Images and Back 2 - Introductory Statistics 1 - Visual Design Basics
06/2006	09/2006	8	Chemistry, Organic Lecture 4 - Organic Chemistry Lecture *4 - Organic Chemistry Lecture
06/2006	09/2006	4	Chemistry, Organic Lab *4 - Organic Chemistry Laboratory
06/2006	09/2006	4	Isolation of Terpenes *4 - Laboratory Research
09/2006	12/2006	16	Amphibian Field Research *8 - Field Research 4 - Amphibian Biology 4 - Specimen Preparation and Museum Curation
01/2007	03/2007	16	Diet of Post-metamorphic Northwestern Salamanders *8 - Herpetology Research Techniques *8 - Amphibian Trophic Ecology

Young, Kevin Ryan

A00142642

Last, First Middle

Student ID

EVERGREEN UNDERGRADUATE CREDIT:

Start	End	Credits	Title
01/2007	03/2007	4	Genetics: Concepts and Applications *4 - Genetics: Principles and Applications
04/2007	06/2007	16	Northwest Salamander Trophic Biology *4 - Research Design *4 - Salamander Ecology *4 - Field Techniques in Herpetology *4 - Lab Techniques in Herpetology
06/2007	09/2007	16	Amphibian Ecology Research 8 - Field Research 4 - Amphibian Biology 4 - Specimen Preparation and Museum Curation
09/2007	12/2007	11	Biology of Amphibians and Reptiles *5 - Herpetology *4 - Physiology of Reptiles and Amphibians *2 - Ecological Herpetology

Cumulative

182 Total Undergraduate Credits Earned



Young	Kevin	R		A0014264	12
Student's Last Name	First	Mid	dle II) Number	
10542	Individual L	earning Contract			
Program or Contract No.	Title				
		24-SEP-2007	14-DEC-20		11
		Date began	Date ended	(Qtr. Credit Hrs.

DESCRIPTION:

Faculty: Erik V. Thuesen, Ph.D.

During this independent learning contract **Biology of Amphibians and Reptiles**, Kevin learned about a large range of herpetological topics (*e.g.*, evolutionary history, behavior, physiology, biology, ecology, taxonomy, etc.). He read all 21 chapters in *Herpetology: An Introductory Biology of Amphibians and Reptiles* (Zug, *et al.* 2001), and he wrote 2-5 page summaries on the material covered in each chapter. To expand his knowledge of the physiology of amphibians and reptiles, Kevin read articles (n = 10) in peer-reviewed scientific journals. He kept an annotated bibliography of these readings. He met periodically with Dr. Marc Hayes to discuss a variety of herpetological subjects focusing on the phylogenetics and evolutionary history of Anura.

EVALUATION:

Written by: Erik V. Thuesen, Ph.D.

Kevin had a very successful quarter carrying out his independent studies on herpetology. His summaries of each chapter in the textbook were extensive and indicated he had digested the important aspects of the various topics. He did an excellent job of explaining the material in his own words. In particular, his summary of the readings related directly to indicator species demonstrated his proficiency in this area. Kevin read 10 articles from journals such as Journal of Experimental Biology, Journal of Herpetology, Ecological Monographs, among others. His readings covered a variety of topics (energetics, reproduction, freeze tolerance, olfaction, metamorphosis, etc.) and taxa (Carreta caretta, Taricha spp., Plethodontidae, Rana spp., Python regius, etc.). His summaries were written concisely, and he did a fine job of pulling out the important results and implications of the research.

SUGGESTED COURSE EQUIVALENCIES (in quarter hours) TOTAL: 11

- *5 Herpetology
- *4 Physiology of Reptiles and Amphibians
- *2 Ecological Herpetology

January 9, 2008

^{*}denotes upper division science credit



V	17.	5		100440	0.40
Young	Kevin	K		A00142	642
Student's Last Name	First	Mi	ddle	ID Number	
40542	Internship I	Learning Contract			
Program or Contract No.	Title				
		25-JUN-2007	01-SEP-2	2007	16
		Date began	Date ended		Otr. Credit Hrs.

DESCRIPTION:

Faculty: Heather Heying, Ph.D.

Amphibian Ecology Research comprised an internship with the WA state Dept of Fish & Wildlife, working with their headwater stream research group. This is a continuation of Kevin's past work with the same research group, which implements adaptive management science, following the Forests and Fish Agreement, which is a landmark agreement in Washington State that involves diverse stakeholders with often disparate philosophies, including the timber industry.

Learning objectives of the Amphibian Ecology Research internship included:

- 1. Gain more in-depth field research experience, while learning about on-going research projects at the Dept of Fish & Wildlife.
- 2. Conduct on-going surveys of 18 headwater streams, including stream characterization (e.g. gradient, substrate, habitat, assessment of primary productivity) and large woody debris assessment (e.g. size and decay class).
- 3. Conduct amphibian population and abundance surveys in headwater streams using longitudinal light-touch method and block-net surveys. Gain more experience handling, identifying, measuring, and weighing amphibians. Learn tissue sampling techniques.
- 4. Continue to learn about Museum collections, including cataloguing and stomach content analysis.

Most major activities of the **Amphibian Ecology Research** internship involved assisting in fieldwork on the Type N Experimental Buffer Treatment Study, a landscape-level manipulative study that seeks to understand the value of patch buffers in protecting public resources on landscapes managed for timber harvest. In addition, the intern learned several Museum techniques, including cataloguing, dissecting, and stomach content analysis.

EVALUATION:

Written by: Heather Heying, Ph.D.

Kevin's internship with the Dept. of Fish and Wildlife this year was very well received, and the fact that they invited him back to work with them again is evidence of his solid work ethic and field skills. Kevin's own assessment of his accomplishments during this internship are further evidence of a scientifically robust and diverse experience. Kevin is growing ever more knowledgeable in several aspects of field research on amphibians and ecosystems, data logging, and Museum collections maintenance and analysis. Kevin's supervisor, Aimee McIntyre, Wildlife Biologist with the Habitat Program at Fish and Wildlife, had this to say about his work (edited only for concision):

"In conducting this work, Kevin was involved with a field crew of 4-12 individuals. Crews were often expected to camp or stay in provided housing during 4-day sampling intervals, sometimes during wet or trying conditions. Fieldwork this season provided Kevin with the opportunity to really diversify his experience, particularly in the area of habitat sampling, with which he had little experience. It also allowed him to gain a sense of contrast between extensive and intensive amphibian sampling

Sep	otember	24,	2007	



Young	Kevin	R		A00142	642
Student's Last Name	First	Mid	idle	ID Number	
40542	Internship I	Learning Contract			
Program or Contract No.	Title				
		25-JUN-2007	01-SEP-20	007	16
		Date began	Date ended		Qtr. Credit Hrs.

methods. His amphibian field experience has also allowed him to refine his animal handling, measurement, sexing, and processing skills, as well as interact with a diverse field crew.

"Besides the above work, Kevin is in the final phase of identifying prey taxa for his dietary research on terrestrial northwestern salamanders. He has completed the dissection of all 40 of his target animals, removed all prey, obtained preliminary identifications on identifiable individuals, and is in the process of sending major taxon groups to specialists for species-level identification. Kevin has been compiling information on northwestern salamanders for inclusion in a web page he will design for The Burke Museum of Natural History and Culture.

"Kevin continues to do quality work in the field, and refine his skills. His familiarity with the project and site locations proved useful, and we often looked to Kevin to guide sampling teams to sites. Kevin is a reliable and confident field sampler. He is efficient and effective while conducting amphibian sampling, an area in which Kevin excels."

SUGGESTED COURSE EQUIVALENCIES (in quarter hours) TOTAL: 16

- 8 Field Research
- 4 Amphibian Biology
- 4 Specimen Preparation and Museum Curation

September 24, 2007

Date



Young	Kevin	R		A001420	642	
Student's Last Name	First	Mic	ddle	D Number	- · · · - · · · · · · · · · · · · · · ·	-
30395	Individual L	Individual Learning Contract				
Program or Contract No.	Title			****		
		02-APR-2007	15-JUN-20	07	16	
		Date began	Date ended		Qtr. Credit Hrs.	•

DESCRIPTION:

Faculty: Amy Cook, Ph.D.

This contract, titled **Northwestern Salamander Trophic Biology**, has allowed Kevin to expand his research into the diet of the terrestrial Northwestern Salamanders (*Ambystoma gracile*). His primary learning goals were to: 1) increase his knowledge of the ecology of the prey species of *A. gracile*, 2) begin to learn how to conduct a field survey of amphibian habitat, 3) learn about the natural habitat of the Northwestern Salamanders through working with the Washington Department of Fish and Wildlife's (WDFW) Headwater Research Group, and 4) working in conjunction with Dr. Marc Hayes, the Curator of Herpetology at the Burke Museum in Seattle, Washington; Kevin looked for correlations between the size and sex of the salamanders and their preferred prey.

EVALUATION:

Written by: Amy Cook, Ph.D.

In order to extend his understanding of the diet composition of *A. gracile*, Kevin analyzed the diet of 40 individuals. He greatly improved his ability to identify several different classes and orders of common insects that appear in the diet of these salamanders and is continuing to work on his ability to identify genera and species. This aspect of the contract provided Kevin with the opportunity to refine his dissection techniques, improve his growing skills in identifying prey taxa and develop preliminary formal writing skills. He has demonstrated both the patience and skills necessary to do this kind of delicate and often tedious systematic work.

His examination of the ontogeny and gender differences in diet involved the use of specimens from the Burke Museum. This portion of the contract provided Kevin with the opportunity to learn about study design, data organization and statistical analysis. As these specimens were caught in pitfall traps, Kevin took on the challenge to develop methods that would distinguish between prey that was taken before and after the salamanders fell into the trap. This provided him with fundamental scientific insight into approaching and resolving complications that often arise in addressing scientific problems.

Kevin participated in 21 days of fieldwork with WDFW. He gained experience in stream profiling, assessment of large woody debris and periphyton sampling. As in the lab, he quickly learned the skills necessary to accomplish tasks and did so with enthusiasm. This experience provided him with the opportunity to see amphibian biology from the perspective of landscape management.

Over the course of the quarter Kevin has shown that he is a dedicated scholar and, if he chooses, is well on his way to a career in the field of herpetology. He exhibited persistence and flexibility and was always working to improve the quality of his work. Kevin is truly passionate about working with amphibians and this contract has given him the opportunity to develop skills, become familiar with the literature and make and strengthen connections among researchers in the field.

Jul	y	20,	2007	



Young	Kevin	R		A001426	642	
Student's Last Name	First	Mic	ddle	ID Number		
30395	Individual L	earning Contract				
Program or Contract No.	Title					
		02-APR-2007	15-JUN-20	007	16	
		Date began	Date ended	-	Qtr. Credit Hrs.	_

SUGGESTED COURSE EQUIVALENCIES (in quarter hours) TOTAL: 16

- *4 Research Design
- *4 Salamander Ecology
- *4 Field Techniques in Herpetology *4 Lab Techniques in Herpetology

July 20, 2007 Date

^{*}indicates upper-division science credit



Young	Kevin	R		A00142	2642
Student's Last Name	First	Mid	ldle	ID Number	<u></u>
20257	Genetics: C	Concepts and Applic	cations		
Program or Contract No.	Title	9-3-00-		,	
		08-JAN-2007	23-MAR-	2007	4
		Date began	Date ended		Qtr. Credit Hrs.

DESCRIPTION:

Faculty: Elizabeth Kutter, Ph.D.

Genetics: Principles and Applications was designed for people with a strong interest in genetics and very strong study and library research skills, but with little molecular background. The format included assigned readings, lectures, workshops, problems, laboratory work on PCR and gel analysis of DNA, 2 integration papers and a quiz. The main text was From Genes to Genomes, 3rd edition, by Lee Hartwell et al, supplemented with a variety of readings from the scientific literature. Particular emphasis was placed on the conceptual and molecular basis of genetics--DNA structure, replication, information storage, mutation, and the mechanisms and regulation of gene expression--from phage and bacteria to various model eukaryotes and human perspectives, with regulation mediated by repressors, inducers, RNAi, second messengers and kinase cascades. Applications included genetic engineering techniques and controversies; somatic genetics and cancer; genes and embryological development; the RNA world; and the evolution of complex DNA genomes. Evaluation was based on class participation, integration papers, and extensive final research projects and class presentations, usually carried out in small groups. Research topics included agricultural applications; the process of speciation; genetic factors in diabetes, Rett's Syndrome, and schizophrenia; HPV and cervical cancer; early evolution of life on earth; genetics of animal domestication; predators and prey; and genetic flow and variation of Pacific Islands peoples.

EVALUATION:

Written by: Elizabeth Kutter, Ph.D.

Kevin entered the program with a good background in chemistry and a strong interest in evolution, ecology, and the effects of environmental stress and made major progress in his understanding of genetics. He worked his way through virtually all of the text, with special attention to the mechanisms and control of gene expression, various structure-function relationships, early and current evolutionary mechanisms, inheritance patterns and the processes involved in creating genetic diversity within species. His first integration paper particularly focused on mechanisms and ramifications of evolution, including population bottlenecks, the importance of genetic diversity and cases where heterozygote benefits help maintain mutations that are very detrimental when homozygous, and posed good questions in a range of areas. He clearly enjoyed the research process and put together a very interesting and well-illustrated PowerPoint presentation on the models for evolutionary speciation to occur. This exploration and his understanding of the various research talks given by his classmates were among the best measures of how much he learned this quarter. He clearly has gained a lot from taking this class and will be able to apply the various concepts and techniques to developing ideas and theories and carrying out research in the future.

SUGGESTED COURSE EQUIVALENCIES (in quarter hours) TOTAL: 4

*4 - Genetics: Principles and Applications

*denotes upper division science credit

April 30, 2007	
Date	



Young	Kevin	R	A00	142642
Student's Last Name	First	Midd		
20736	Individual L	earning Contract		
Program or Contract No.	Title			
		08-JAN-2007	23-MAR-2007	16
		Date began	Date ended	Qtr. Credit Hrs.

DESCRIPTION:

Faculty: Amy Cook, Ph.D.

Kevin's major activity under this internship, **Diet of Post-metamorphic Northwestern Salamanders**, was to examine variations in prey species, life stage, and size among individuals across the full range of sizes of post-metamorphic northwestern salamanders collected by pitfall trapping during the mid-1980s Old-growth studies in Washington State that are currently housed at the University of Washington Burke Museum of Natural History and Culture. This involved dissecting out the gastrointestinal tract of the salamanders and identifying the contents to order, genera, and if possible, species. Kevin also reviewed the available literature on the diet of northwestern salamanders and their relatives. Lastly, Kevin was involved in collecting and analyzing amphibian population samples as part of a larger study being done at the University of Washington

EVALUATION:

Written by: Amy Cook

This Contract provided Kevin with the opportunity to learn about the ecology of the Northwestern Salamanders (*Ambystoma gracile*) and develop some important skills in the field of herpetology.

The skills Kevin developed included both lab and field techniques. In the field he learned how to capture, measure and sex salamanders. The lab skills he gained include dissection techniques, morphometric measurements and identification of macroinvertebrates. In addition to developing his dissection technique, Kevin also learned a lot about salamander anatomy.

Through his own work and through reading the primary literature, Kevin developed a very good understanding of the diet of *A. gracile* throughout its life history and the ecology of its invertebrate prey. Near the end of the quarter he got the opportunity to go to a Society of Northwestern Vertebrate Biology meeting and was able to discuss his preliminary research with both peers and professionals. He made acknowledged contributions to two poster presentations at the meeting: "Species Identification and Body Size Estimation of Amphibians in Washington State Based on Foot Morphology" by Julie A Tyson, et. al. and "Testing the Effectiveness of Riparian Buffers Along Non-Fish-Bearing Streams: The Type N Experimental Buffer Treatment Study" by Aimee P McIntyre et. al. This experience gave Kevin an important opportunity to interact with professionals in the field.

SUGGESTED COURSE EQUIVALENCIES (in quarter hours) TOTAL: 16

- *8 Herpetology Research Techniques
- *8 Amphibian Trophic Ecology
- *denotes upper division science credit

July 26	5, 2007	
Date		



The Evergreen State College - Olympia, Washington 98505

FACULTY EVALUATION OF STUDENT ACHIEVEMENT

Young	Kevin	R		A00142642	
Student's Last Name	First	Mic	ddle ID	Number	
10706	Internship I	Learning Contract			
Program or Contract No.	Title	——————————————————————————————————————			
		25-SEP-2006	15-DEC-200	06 16	
		Date began	Date ended	Otr Cred	it Hrs

DESCRIPTION:

Faculty: Heather Heying, Ph.D.

Amphibian Field Research comprised an internship with the WA state Dept of Fish & Wildlife, working with their headwater stream research group. This group implements adaptive management science, following the Forests and Fish Agreement, which is a landmark agreement in Washington State that involves diverse stakeholders with often disparate philosophies, including the timber industry.

Learning objectives of the Amphibian Field Research internship included:

- Gain more field research experience, while learning about on-going research projects at the Dept of Fish & Wildlife
- 2. Collect physical environment and amphibian species data from headwater streams
- 3. Learn to identify and sex amphibians of Western Washington at several life stages
- 4. Learn to navigate and update Fish & Wildlife's Type N Buffer Treatment database
- 5. Learn about Museum collections, including cataloguing and stomach content analysis.

Most major activities of the **Amphibian Field Research** internship involved assisting in fieldwork on the Type N Experimental Buffer Treatment Study, a landscape-level manipulative study that seeks to understand the value of patch buffers in protecting public resources on landscapes managed for timber harvest. In addition, the intern learned several Museum techniques, including cataloguing, dissecting, and stomach content analysis.

EVALUATION:

Written by: Heather Heying, Ph.D.

Kevin's internship with the Dept. of Fish and Wildlife was very well received, and his own assessment of his accomplishments during this internship are evidence of a scientifically robust and diverse experience. Kevin is now knowledgeable in several aspects of field research on amphibians and ecosystems, data logging, and Museum collections maintenance and analysis. Kevin's supervisor, Aimee McIntyre, Wildlife Biologist with the Habitat Program at Fish and Wildlife, had this to say about his work (edited only for concision):

"When Kevin began this internship, he already had a passion for herpetology. This internship provided Kevin with the opportunity to diversify his field experience, and gain skills applicable to ecological fieldwork. Kevin was enthusiastic about learning, and quickly developed the skills necessary to work with amphibians in the field.

"In addition, Kevin participated in two aspects of Museum work. First, he performed micro-dissections of the digestive tracts of Columbia torrent salamanders collected from seeps in order to evaluate dietary patterns. Such micro-dissection is delicate, time-consuming work that required patience and dexterity, and Kevin exhibited both a particular ability and a liking for this kind of work. Kevin was also involved in assisting Marc Hayes, Curator of the Herpetology, to catalog the collection, which involves measuring and sexing, sometimes by dissection, specimens. Kevin found his work at the Burke particularly inspiring, and he will be continuing with an independent project involving the diet of Northwestern salamanders.

January	12,	2007
Data		



Young	Kevin	R		A001426	642	
Student's Last Name	First	Mi	ddle	ID Number		
10706	Internship l	_earning Contract				
Program or Contract No.	Title			4444		
		25-SEP-2006	15-DEC-26	006	16	
		Date began	Date ended		Otr. Credit Hrs	_

"Lastly, Kevin was involved in data entry and management of field data collected for the Type N Study. Data entry, which can be extraordinarily tedious and monotonous, may have helped Kevin to gain an appreciation for the process of ecological research. Kevin was diligent and task-focused while entering data, although one area where I could suggest improvement would be in greater attention to detail in quality control of data entered.

"While it can be rewarding to be involved with research involving a diverse array of data collection, it also takes persistence and flexibility, both of which Kevin has exhibited. Kevin was adaptable and consistent in the quality of his work. He readily participated in all aspects of the internship. During amphibian sampling, he was expected to sleep over in provided housing for up to four days at a time. Spending a week at a time out in the field can be both some of the most gratifying, as well as some of the most demanding, fieldwork. Kevin adjusted to this type of work well, and was able to integrate into a field crew that had already been working together since May. Beginning this internship with an enthusiasm for herpetology, Kevin was able to sharpen his goals and consider alternatives in this field. I look forward to his continued progress and have no doubt that he will succeed in whatever goals he sets for himself. I would recommend Kevin for any position involving herpetology work, in the field or lab."

SUGGESTED COURSE EQUIVALENCIES (in guarter hours) TOTAL: 16

- *8 Field Research
- 4 Amphibian Biology
- 4 Specimen Preparation and Museum Curation

January 12, 2007

^{*}indicates upper-division science credit



The Evergreen State College - Olympia, Washington 98505 THE STUDENT'S OWN EVALUATION OF PERSONAL ACHIEVEMENT

Young	Kevin	R	A00142642
Student's Last Name	First	Middle	ID Number
Amphibian Field Resea	arch	09/25/06	12/15/06
Title		Date Began	Date ended

I have spent the last quarter working for fish and wildlife on a variety of amphibian related research projects. I have always had an interest and fascination with reptiles and amphibians for longer than I can remember, and felt that this internship would give me the tools necessary to pursue these interests. After finishing this internship, I think I have achieved that goal as well as made a much greater progress toward my long term goals through experience, knowledge, and relationships gained over the course of the last ten weeks.

Over the last few months I have participated in many different areas of herpetological research. One of the more significant projects was collecting field data about amphibian populations and habitat. I have learned how to make accurate observations and records of aspects such as, habitat, species, sex, life stage, lengths, and weights. I have learned how to navigate through unmarked backcountry and correctly identify the habitat features within those areas. A large part of the field surveys that I participated in were done by using "light touch" and "block net" methods. One of the tasks that I found to be interesting was the collection of genetic material from the animals. Although, a large portion of the work that I have done over the course of this internship has been conducted in the field, there has been a lot that I have done in laboratory and office.

I was in charge of much of the data entry for the data collected in the field by me and the other people in the crew. I went though the data that had been collected and created a data base for the information. I was able to figure out and analyze much of the data and problems solve most of the discrepancies amongst the data. The work that I have done in the laboratory has been the most rewarding and conducive to my understanding of amphibians. I helped various people with a variety of amphibian research projects that are being conducted at the Burke Museum of Natural History. I learned how to accurately measure body size in relationship to toe lengths using calipers. I learned how to identify/verify male and female organs by dissection, and determine any irregularities of the development of the sex organs of the specimens. Other projects that I worked on were the dietary analysis of torrent salamanders and red legged frogs. Through dissection, I was able to identify a variety of food items and parasites found in the stomach and intestine of the animals. I was then able to collect, measure, and catalog these individual prey items.

I have found this last quarter has presented me with many opportunities to further and achieve my long term goals in the study of biological and herpetological areas. The relationships and contacts that I have made along with the knowledge and experience that I have achieved lead me to believe that this has been one of the most valuable parts of my undergraduate education and my own research interests for the future.

2 W/		
Student's signature U	Faculty signature: Heather Heying	
3/14/02		
Date	Date	



Young	Kevin	R		A00142	642	
Student's Last Name	First	Mic	ddle	ID Number	· · · · · · · · · · · · · · · · · · ·	_
40330	Individual L	earning Contract				
Program or Contract No.	Title				·	
		26-JUN-2006	01-SEP	-2006	4	
		Date began	Date ended		Otr Credit Hre	

DESCRIPTION:

Faculty: Peter J. Pessiki, PhD

Kevin performed research under my direction during the summer of 2006. His project involved **Isolation of Terpenes**. Activities included becoming proficient with the departmental GC-MS instrument and utilize this for the analysis of mint oil and hops. Kevin was also involved with the growing and harvesting of the mints, which were located at the TESC Organic Farm.

EVALUATION:

Written by: Peter J. Pessiki, PhD

Kevin put a lot of effort into this contract and has shown steady improvement in his lab technique involving the isolating plant constituents using steam distillation methods. He has become licensed on the departmental GC-MS and has routinely utilized this instrument to analyze his samples.

Kevin fulfilled his contract and is well prepared to continue with lab work. He is awarded four credits (upper division) in laboratory research.

SUGGESTED COURSE EQUIVALENCIES (in quarter hours) TOTAL: 4

*4 - Laboratory Research

*Denotes upper-division science credit

September 16, 2006



Young	Kevin	R	A00142642	
Student's Last Name	First	Middle	ID Number	
40036	Chemistry, Organic La	b		
Program or Contract No.	Title	· · · · · · · · · · · · · · · · · · ·	***	
	26-JUN-	2006 01-S	EP-2006 4	
	Date began	Date er	oded Otr	Credit Hrs

DESCRIPTION:

Faculty: Peter J. Pessiki, PhD

The Organic Chemistry Laboratory taught at TESC in the summer of 2006 focused on macroscale experiments. Separation techniques such as pH dependent extractions, distillations and column chromatography were performed. The wet chemistry included porphyrin synthesis and ester formation as well as purification of products by recrystallization. The use of balances and melting point apparatuses were common. The students learned how to operate refractometers and absorption spectrometers (diode array). An introduction to the scientific literature/resources was also incorporated into the lab and the Merck Index and Aldrich Chemical Catalog were used on a regular basis to retrieve physical data concerning organic molecules.

The criteria utilized for evaluating the students were participation and the quality of lab write up.

EVALUATION:

Written by: Peter J. Pessiki, PhD

Kevin has gained a good deal of hands-on experience in the lab and is confident with his technique. He works well independently and has become comfortable using scientific apparatus and glassware that was new to him. Kevin has good lab sense and enjoys working with his hands. Unfortunately, his laboratory write-ups were only partly completed.

I feel Kevin is suited for more advanced laboratory work and is awarded four credits in Organic Chemistry Lab.

SUGGESTED COURSE EQUIVALENCIES (in quarter hours) TOTAL: 4

*4 - Organic Chemistry Lab

*Denotes upper-division science credit

September 1, 2006



Young	Kevin	R		A001426	342	
Student's Last Name	First	Mic	ddle	ID Number		
40037	Chemistry,	Organic Lecture				
Program or Contract No.	Title					
		26-JUN-2006	01-SEP-20	006	8	
		Date began	Date ended		Otr. Credit Hrs	

DESCRIPTION:

Faculty: Peter J. Pessiki, PhD

The Organic Chemistry Lecture taught at TESC in the summer of 2006 utilized the text *Organic Chemistry* by Hart, Crane and Hart. This intense summer course required the students to devote themselves to the field of organic chemistry. Every class contained two lectures, a quiz and many ended with a workshop to encourage problem solving and constant focus. The lecture was structured around organic functional groups. Topics included nomenclature, chemical bonding, stereochemistry, synthesis, mechanistic organic chemistry and the acid-base/physical properties of both aliphatic and aromatic compounds. Other topics covered included heterocycles, some molecular orbital theory and an introduction to lipids, carbohydrates and the amino acids.

The criteria utilized for evaluating my students were participation and exam/quizzes.

EVALUATION:

Written by: Peter J. Pessiki, PhD

Kevin's performance in Organic Chemistry Lecture has been impressive the entire course. His participation has been near perfect and he often has kept current with the assigned work while scoring well on the quizzes and exam. Kevin has a good understanding of nomenclature, hybridization and the relationship between functional groups and the physical properties of organic molecules. He can work out some multistep synthesis problems and reaction mechanisms. Kevin will do well in advanced courses requiring knowledge of organic chemistry.

Kevin has participated in the entire lecture and lab, he demonstrated that he has the ability to dedicate himself (both physically and intellectually) to a challenging and time consuming commitment. Kevin did this in a professional manner and is awarded eight credits in Organic Chemistry Lecture for his effort.

SUGGESTED COURSE EQUIVALENCIES (in quarter hours) TOTAL: 4

- 4 Organic Chemistry Lecture
- *4 Organic Chemistry Lecture
- *Denotes upper-division science credit

September 7, 2006



Young	Kevin	R		A0014264	12	
Student's Last Name	First	Midd	dle	ID Number	. 400	_
30527	Seeing is Knowing: From Data to Images and Back					
Program or Contract No.	Title					_
		03-APR-2006	16-JUN-20	006	3	
		Date hegan	Date ended		Otr. Credit Hrs	_

DESCRIPTION:

Faculty Allen Mauney, M.S.

Literacy in the 21st century is not the same as literacy in the centuries before. Beginning with the 16th century, literacy was defined to be the ability to understand and use written words. Social, political and economic power could be derived from the ability to read and write effectively. Little challenged the supremacy of the written word until the middle of the 20th century when film and television became available on a wide-scale basis and were used to transmit entertainment, commercial and political information. By the 21st century this development accelerated so that images on a variety of screens became the most important media for almost all important discourse. Literacy must now include a substantial amount of visual sophistication and expertise. At the same time that visual information was becoming more and more important, numerical data were also being used to make a very wide variety of decisions that previously were entirely based on human judgment. In order to participate fully in democratic decision making, evaluate health care claims and consider environmental policies that have vast implications, it is now necessary to be numerically/statistically literate. After reading the books, completing the assignments, discussing the material and hearing various guest lectures students should achieve the following: 1) understand and use basic principles of design create documents that communicate effectively and also be able to critique various documents; 2) understand and write about visual literacy; 3) understand and use statistical measures and tests to make decisions about data sets; and 4) at the intersection of design and statistics analyze statistical graphics critically.

EVALUATION:

Written by: Allen Mauney, M.S.

In his writing about visual literacy, Kevin recognized the essential role that time, place and class play in perceptions. He agreed with the philosophy of individualism that permeated the reading. The document that he created was very sketchy and at best a first draft. Kevin did some work in basic probability, the t-distribution, confidence intervals and the normal distribution. In all cases he did the absolute minimum amount of work.

SUGGESTED COURSE EQUIVALENCIES (in quarter hours) TOTAL: 3

2 - Introductory Statistics

1 - Visual Design Basics.

September 1, 2006

Date



Young	Kevin	R		A001426	642	
Student's Last Name	First	Midd	ile i	D Number		
30525	Chemistry,	General III				
Program or Contract No.	Title		**************************************			_
		03-APR-2006	16-JUN-20	06	6	
		Date began	Date ended		Qtr. Credit Hrs.	_

DESCRIPTION:

Faculty: Peter J. Pessiki, PhD

General Chemistry III taught at TESC during the spring of 2006 utilized the text *Chemistry* by Zumdahl and Zumdahl. Students focused on chemical equilibrium and acid base chemistry with an emphasis on calculations involving pH and buffer solutions. In addition, the concepts of free energy, entropy, electrochemistry, nuclear chemistry and an introduction to transition metals and ligand field theory were covered.

The laboratory part of the course was independent of the lecture with some overlap. Experiments utilized pH meters, spectrophotometers, titrations, buffers, electrochemical measurements and the making of bio-diesel. Students were required to complete every lab and attend the 9th Annual University of Washington Undergraduate Research Symposium.

The criteria utilized for evaluating the students were participation, quizzes and lab.

EVALUATION:

Written by: Peter J. Pessiki, PhD

Kevin has participated in General Chemistry demonstrating the physical and mental dedication necessary to complete this rigorous course. He completed many assignments and participated actively in most all class activities. Kevin has done satisfactory on the weekly quizzes and exam. He has an understanding of the lecture material in both a qualitative and quantitative sense.

Kevin performed well in the laboratory and seemed to enjoy doing wet chemistry. He has learned a great number of wet chemistry skills, is comfortable in a laboratory setting and completed many lab reports.

I feel Kevin has mastered the material presented and is prepared for advanced material requiring general chemistry.

SUGGESTED COURSE EQUIVALENCIES (in quarter hours) TOTAL: 6

- 4 Chemistry Lecture
- 2 Chemistry Lab

August 10, 2006



Young	Kevin	R	A00	142642
Student's Last Name	First	Mido		
20674	Statistics, I	ntroduction to		
Program or Contract No.	Title			
		09-JAN-2006	24-MAR-2006	2
		Date began	Date ended	Otr. Credit Hrs

DESCRIPTION:

Faculty: Alvin Josephy

Students in Introduction to Statistics worked through the basics of descriptive statistics. The class included weekly homework problems, an article presentation from the popular media and a group project which included an oral presentation at the end of the term. The class also included four Excel labs, using the statistical tools in the software. The objectives of the class included developing an understanding of the measurements required to do mathematical statistics as well as the development of an analytical understanding of what statistics mean in the context of the world we live in. A further goal was to work cooperatively in a small group to state a claim about a topic and to use statistics to "tell a story" about it.

EVALUATION:

Written by: Alvin Josephy

Kevin Young completed most of the requirements of this introductory statistics program. He completed some of the assigned weekly work. For his article presentation, Kevin used an article from the *Guardian* newspaper which gave the English view of the Super Bowl. It analyzed through statistics the caloric intake of the average fan watching the game on TV. For his group project Kevin attempted to show how statistics are used to develop insurance rates. Kevin worked hard in this class, and made many valuable in-class contributions. However, he will need to do more preparation in basic statistics before he is ready to advance to more rigorous quantitative work.

SUGGESTED COURSE EQUIVALENCIES (in quarter hours) TOTAL: 2

2 -Statistics

April 10, 2006

Date



Young	Kevin	R	A00 ⁻	142642
Student's Last Name	First	Midd	le ID Numb	per
20297	Cells and Mol	ecules		
Program or Contract No.	Title		· · · · · · · · · · · · · · · · · · ·	
		09-JAN-2006	24-MAR-2006	4
	_	Date began	Date ended	Otr Credit Hrs

DESCRIPTION:

Faculty: Karen Hogan, PhD

In this course we considered the processes at the cellular level and below. After a brief introduction to evolutionary concepts, we discussed the properties of water and their biological consequences, simple molecules and macromolecules. This included monomers and polymers, basic reactions, and important functional groups. Then we considered enzymes and metabolic processes, including cellular respiration. We followed this with studies of cell processes including mitosis and meiosis, followed by molecular genetics, DNA replication and gene expression. The principle text was *Biological Science, Vol. 1* by Scott Freeman. We had several laboratory activities, on properties of water, macromolecules, cell structure and function, and metabolism.

EVALUATION:

Written by: Karen Hogan, PhD

Kevin demonstrated a good understanding of the processes we studied in this course, particularly metabolism and molecular genetics. He showed an understanding of how to apply evolutionary concepts to cell biology, which he illustrated with a discussion of mitochondria as endosymbionts.

SUGGESTED COURSE EQUIVALENCIES (in quarter hours) TOTAL: 4

4 - Cellular and molecular biology

July	26,	20	06		
Date					



Young	Kevin	R	A00142	642
Student's Last Name	First	Middle	ID Number	
20244	Chemistry, General	II		
Program or Contract No.	Title			
	09-JA	N-2006 24	-MAR-2006	6
	Date be	gan Dat	e ended	Otr Credit Hrs

DESCRIPTION:

Faculty: Dr. Peter J. Pessiki

General Chemistry II, taught at TESC during the 2006 winter quarter, covered chapters 7-12 of the text *Chemistry* by Zumdahl and Zumdahl. The course started with a thorough investigation of how atoms unite to form molecules with a focus on covalent bonding. Next we investigated intermolecular forces and the properties of solutions and then we ended with the topic of chemical kinetics. The students were introduced to chemical drawing programs.

The laboratory part of the course was independent from the lecture with some overlap. Students performed a number of experiments that required utilizing the following scientific techniques/instrumentation: absorption spectrophotometry, microscopes, colligative properties, alcohol fermentation, crystal growth and titrations.

The criteria utilized for evaluating my students were participation, quizzes and exams.

EVALUATION:

Written by: Dr. Peter J. Pessiki

Kevin performed well in all aspects of the course as his knowledge of chemistry grew. His participation has been perfect and he has kept current with most of the assigned work. Kevin performed well on all written evaluations of his work.

Kevin successfully completed the entire laboratory program demonstrating good lab technique and the ability to work with others. He turned in quality lab reports and showed he could write a formal lab report.

Kevin is well prepared and motivated to continue his studies in general chemistry and is awarded six credits.

SUGGESTED COURSE EQUIVALENCIES (in quarter hours) TOTAL: 6

- 2 General Chemistry Lab
- 4 General Chemistry Lecture

March 21, 2006



The Evergreen State College - Olympia, Washington 98505

FACULTY EVALUATION OF STUDENT ACHIEVEMENT

Young	Kevin	R	А	.00142642
Student's Last Name	First	Mid		lumber
10030	Introduction	n to Natural Science)	
Program or Contract No.	Title			
		26-SEP-2005	16-DEC-2005	5 16
		Date began	Date ended	Qtr. Credit Hrs.

DESCRIPTION:

Faculty: Lydia McKinstry, Ph.D., Mario Gadea, M.A., and Donald Morisato, Ph.D.

The goal of this program was to examine the physical and chemical properties of the natural world at a variety of levels of scale, both in time and space. We looked at the scientific process of formulating questions, collecting data and making critical interpretations. Each student was expected to have gained hands-on experience and a working knowledge of scientific and mathematical concepts, along with an ability to reason critically and solve problems pertaining to energy and matter in the natural world.

General Chemistry I with Laboratory – This component covered the fundamental principles of chemistry including the concepts of matter, molecules, stoichiometry and the mole; the electronic structure of atoms and the periodic table of elements; principles of chemical bonding and basic molecular orbital theory. The laboratory introduced students to basic chemistry techniques and quantitative experiments involving aqueous solution chemistry. Student evaluations were based on performance on in-class quizzes and exams, content of individual lab notebooks, homework assignments, and participation in workshops.

Textbook: Brown, T. L., LeMay, H. E., Jr. and Bursten, B. E. *Chemistry: The Central Science* 10/e. New Jersey: Prentice Hall, 2006.

General Biology I with Laboratory – This component provided an introduction to the chemical structures and properties of biological macromolecules (proteins, nucleic acids, carbohydrates and lipids); structure and functional organization of prokaryotic and eukaryotic cells; cellular respiration; and the cell cycle. In the laboratory, students learned how to use the microscope and spectrophotometer, and carried out experiments on cell fractionation by differential centrifugation and measurement of enzyme activity. Student evaluations were based on performance on in-class exams, lab report, content of individual lab notebooks, and participation in workshops.

Textbook: Freeman, S. Biological Science 2/e. New Jersey: Prentice Hall, 2005.

Precalculus with Laboratory - Topics covered included linear and quadratic functions, polynomials, rate of change, basic principles in data analysis, exponential and logarithmic functions and models, applications of trigonometric functions, matrix algebra, systems of equations and vector analysis. Laboratories explored some direct applications of precalculus and physics principles and incorporated real situations that help students develop a coherent description of the physical world. These included: linear and parabolic models, Newton's law of cooling, the logistic model and the spread of disease, static equilibrium and the force table, parametric equations and free-falling objects. Student evaluations were based on exams, homework assignments, and participation in labs and workshops.

Textbook: Sullivan, M. Precalculus 2/e. New Jersey: Prentice Hall, 2005.

Scientific Communication - Three seminar topics were chosen in order to broaden the scientific concepts presented in biology, chemistry and math into the areas of public policy and philosophy: 1) the nature of scientific discovery; 2) the history of anti-malarial drugs; and 3) the development of the prion hypothesis as an explanation for neurodegenerative diseases. Students were asked to read selections, submit a brief

January 25, 2006



The Evergreen State College - Olympia, Washington 98505

FACULTY EVALUATION OF STUDENT ACHIEVEMENT

Young	Kevin	R		A00142	642
Student's Last Name	First	Mi	ddle	iD Number	
10030	Introduction	n to Natural Scienc	e		
Program or Contract No.	Title				·
		26-SEP-2005	16-DEC-	2005	16
		Date hegan	Date ended		Otr Cradit Hrs

essay and participate in group discussions. Evaluations were based on written assignments and seminar participation.

EVALUATION:

Written by: Donald Morisato

Kevin Young entered Introduction to Natural Science with a very weak science background. Kevin completed most of the required work, and he showed participation in workshop, seminar, and laboratory sessions. Kevin made progress in attaining a rudimentary grasp of the basic concepts covered during the quarter.

Kevin demonstrated a fair to weak understanding of the topics in Chemistry. He understood how to balance reaction equations and showed moderate success with stoichiometry; he would benefit from a review of atomic structure and redox chemistry. Kevin was often not prepared in the laboratory. His lab notebook was poor, being incomplete in the description of experimental results and analysis of data.

Kevin showed progress over the quarter and demonstrated a fair overall understanding of Biology. He improved upon a poor midterm exam with a significantly better final exam, which indicated familiarity with several major concepts. His lab notebook showed improvement in its overall organization, although it needed additional background information and a more thoughtful analysis of the results. No lab report was submitted.

Kevin struggled with the quantitative work and did not grasp the main concepts presented in Precalculus. Although he completed detailed homework in the first half of the quarter, several assignments were missing. He tried to make effective use of the workshop sessions for his learning.

SUGGESTED COURSE EQUIVALENCIES (in quarter hours) TOTAL: 16

- 5 General Chemistry I with Laboratory
- 5 General Biology I with Laboratory
- 5 Precalculus with Laboratory
- 1 Scientific Communication

January 25, 2006

Date



The Evergreen State College - Olympia, Washington 98505 THE STUDENT'S OWN EVALUATION OF PERSONAL ACHIEVEMENT

Young	Kevin	R	A00142642	
Student's Last Name	First	Middle	ID Number	
Introduction to Natural	Science	09/26/2005	12/16/2005	
Title		Date Began	Date ended	

This last quarter in the Introduction to Natural Science program, I had the pleasure of discovering many different concepts and ideas in the areas of mathematics, biology, and chemistry. In mathematics I learned many different ways of calculating, interpreting, and accurately recording the data. In biology, I was introduced in great detail to the complex workings of molecular biology, as well as, the inter-workings behind basic cellular structure and function. Chemistry was the most difficult and confusing of the three subjects studied. Although, I have achieved a much greater understanding of how chemicals react with one another, the basic structure of common chemical compounds and a general feeling for how they come together to form everything in the world around us. Aside from the specific areas of study, I think that I have gained many valuable study skills to help me along my way through the rest of my education and career.

Within the mathematics portion of this program I was able to attain an understanding of the basic principals behind the mathematics associated with any general physical science. For example, I now have an understanding of how to use equations to both predict and ascertain rates of growth and decay, thermal dynamics, and population growth over time. I see many of the skills acquired in this class being invaluable for my interest in the biological and natural sciences.

Within the biology portion of this program I learned many valuable laboratory skills, such as, how to use a spectrophotometer to calculate concentrations of solutions and was able to practice the ability to create accurate and relevant data. One of the concepts I have learned a great deal about, is how the shape of proteins are just as important if not more so than the actual chemical makeup. I was also able to gain knowledge of hydrophobic and hydrophilic interactions. The most interesting thing that I got to look at was at a cellular level. I was able to identify the different parts of different cells and how they functioned as a single complex unit to produce biological reactions in plants, bacteria, and animals. Although very demanding and complex, I feel that I have learned volumes about the biological processes from the molecular to the cellular level.

In chemistry, I found stiochiometry to be the most useful and interesting subject that was covered. I entered this program knowing nothing about chemistry; but, I left with a general knowledge of the underlying principals. The most valuable thing for me was the formulas and equations that go along with chemistry especially; the specific mathematics of stiochiometry, which mainly deals with the ratios of mass, quantity, mixtures, dilution, and reactions. Along with the chemistry knowledge that I gained, I was able to practice different lab techniques with an emphasis on recording data more accurately.

As a whole, this program proved to be the most difficult and challenging quarter thus far in my college career. It was very fast paced and began at a high level of prior understanding that I had not expected. So far, I have never had to work so hard in school before. I feel that although I struggled with the work load and exams; my understanding and knowledge of the subjects covered has undoubtedly grown extensively over this last quarter. I feel that I can walk away from this program with knowledge gained, as well as, invaluable tools for progress as my studies of subjects and materials become more difficult and demanding.

ila wy		
Student's signature /	Faculty signature: Donald Morisato	
12/17/85		
Date	Date	



The Evergreen State College • Olympia, WA 98505 • www.evergreen.edu

EVERGREEN TRANSCRIPT GUIDE

Accreditation: The Evergreen State College is fully accredited by the Northwest Commission on Colleges and Universities.

Degrees Awarded: The Evergreen State College awards the following degrees: Bachelor of Arts, Bachelor of Science, Master of Environmental Studies, Master of Public Administration and Master In Teaching. Degree awards are listed on the Record of Academic Achievement.

Educational Philosophy:

Our curriculum places high value on these modes of learning and teaching objectives:

- Interdisciplinary Learning
- Collaborative Learning
- Learning Across Significant Differences
- Personal Engagement
- Linking Theory with Practical Applications

Our expectations of Evergreen Graduates are that during their time at Evergreen they will:

- Articulate and assume responsibility for their own work
- · Participate collaboratively and responsibly in our diverse society
- · Communicate creatively and effectively
- · Demonstrate integrative, independent, critical thinking
- Apply qualitative, quantitative and creative modes of inquiry appropriately to practical and theoretical problems across disciplines, and,
- As a culmination of their education, demonstrate depth, breadth and synthesis of learning and the ability to reflect on the personal and social significance of that learning.

Our students have the opportunity to participate in frequent, mutual evaluation of academic programs, faculty and students. In collaboration with faculty and advisors, students develop individual academic concentrations.

Academic Program

Modes of Learning: Evergreen's curriculum is primarily team-taught and interdisciplinary. Students may choose from among several modes of study:

- · Programs: Faculty members from different disciplines work together with students on a unifying question or theme. Programs may be up to three quarters long.
- Individual Learning Contract: Working closely with a faculty member, a student may design a one-quarter-long, full-time or part-time research or creative project. The contract document outlines both the activities of the contract and the criteria for evaluation. Most students are at upper division standing.
- Internship Learning Contract: Internships provide opportunities for students to link theory and practice in areas related to their interests. These full- or part-time opportunities involve close supervision by a field supervisor and a faculty sponsor.
- Courses: Courses are 2-6 credit offerings centered on a specific theme or discipline.

The numerical and alpha characters listed as Course Reference Numbers designate modes of learning and are in a random order.

Evaluation and Credit Award:

Our transcript consists of narrative evaluations. Narrative evaluations tell a rich and detailed story of the multiple facets involved in a student's academic work. A close reading of the narratives and attention to the course equivalencies will provide extensive information about student's abilities and experiences. Students are not awarded credit for work considered not passing. Evergreen will not translate our narrative transcript into letter or numeric grades.

<u>Transcript Structure and Contents:</u> The Record of Academic Achievement summarizes credit awarded, expressed in quarter credit hours. Transcript materials are presented in inverse chronological order so that the most recent evaluation(s) appears first.

Credit is recorded by:

Quarter Credit Hours: Fall 1979 to present

Evergreen Units: 1 Evergreen Unit (1971 through Summer 1973) equals 5 quarter credit hours

1 Evergreen Unit (Fall 1973 through Summer 1979) equals 4 quarter credit hours

Each academic entry in the transcript is accompanied by (unless noted otherwise):

- The Program Description, Individual Contract or Internship Contract which explains learning objectives, activities and content of the program, course or contract.
- The Faculty Evaluation of Student Achievement provides information on specific work the student completed and about how well the student performed in the program or contract.
- The Student's Own Evaluation of Personal Achievement is a reflective document written by the student evaluating his or her learning experiences. Students are encouraged but not required to include these documents in their official transcript, unless specified by faculty.
- The Student's Summative Self Evaluation is an optional evaluation summarizing a student's education and may be included as a separate document or as a part of the student's final self- evaluation.

Transfer credit for Evergreen programs, courses and individual study should be awarded based upon a careful review of the transcript document including the course equivalencies which are designed to make it easier for others to clearly interpret our interdisciplinary curriculum. These course equivalencies can be found at the conclusion of each of the Faculty Evaluation of Student Achievement.

The college academic calendar consists of four-eleven week quarters. Refer to the college website (www.evergreen.edu) for specific dates.

This record is authentic and official when the Record of Academic Achievement page is marked and dated with the school seal.

All information contained herein is confidential and its release is governed by the Family Educational Rights and Privacy Act of 1974 as amended.

If, after a thorough review of this transcript, you still have questions, please contact Registration and Records: (360) 867-6180.