

NTID NEW PROGRAM CONCEPT PAPER

I. Title/Department/College

- a. Title: **A.S. in Applied Science**
- b. Department: **Science and Mathematics**
- c. College: **National Technical Institute for the Deaf (NTID)**
- d. Proposer Name and Contact Information: **Matthew Lynn, Chairperson, NTID Department of Science and Mathematics, LBJ Hall-2273 585-475-5923, videophone 585-286-4571, malntm@rit.edu**

II. Goals and Justification for Proposed Program

The proposed new program in Applied Science is designed as an Associate of Science (A.S.) degree program in NTID's Department of Science and Mathematics. This degree will provide an efficient path for students who need academic preparation in order to matriculate into a baccalaureate (BS) program in either RIT's College of Science (COS) or College of Health Sciences and Technology (CHST). Specifically, students will take the appropriate general education and science coursework to continue their studies in one of the following BS programs: Biochemistry, Biology, Biomedical Sciences, Chemistry or Environmental Science. This is an additional Associate+Bachelor (A+B) program that will be an addition to NTID's curriculum portfolio.

Currently, NTID-supported students who are not accepted directly into programs in RIT's College of Science or College of Health Sciences and Technology enter either the Laboratory Science Technology (LST) AAS program or the one-year NTID science pre-baccalaureate (pre-bacc) program depending on their placement in math and English courses on campus. The LST program articulates with the School of Individualized Studies to allow students to earn a baccalaureate degree, but it does not truly serve as the "A" half of an "A+B" program in the sense that its coursework is not the same as that provided in the freshman and sophomore years of a baccalaureate program. As for the NTID pre-bacc program, students undertake one COS two-course sequence as well as liberal arts courses and any preparatory English and math that they need during their one year in the program. However, just as students who progress through RIT's University Studies, NTID's pre-bacc students do not earn a degree upon completion of the program. The proposed A.S. in Applied Science degree program therefore incorporates coursework and experiences that intentionally prepare students to succeed once they enter COS and CHST BS programs and it provides them with a degree-granting pathway to complete the first half of a true "A+B" program by completing courses that satisfy freshman and sophomore course requirements in COS and CHST baccalaureate programs. As such, this A.S. program will provide a clearer and more understandable path to a B.S. degree than does the pre-bacc program, thereby serving as a benefit to the recruitment of students.

Program Objectives:

- Provide students with the skills required for entry into the COS or CHST major in the intended field of study through the development of:
 - reading and writing skills.
 - critical thinking and ethical reasoning skills.
 - mathematical and scientific abilities.
- Acceptance of students into baccalaureate COS or CHST major.
- Completion of baccalaureate degree by AS graduates at a rate commensurate to that of students who transfer into the BS program via other routes.

The proposed A.S. program in Applied Science also has an important advantage over the current pre-baccalaureate program that can impact recruitment and retention. Students who complete the pre-baccalaureate program but do not complete a bachelor's program will leave RIT without any degree at all. Under this proposed program, students who complete the Applied Science coursework but do not complete the bachelor's program the student still will have earned an associate degree from RIT/NTID with a foundation in science and can use it to seek employment.

The design of the proposed Applied Science program, based in part on discussions with COS and CHST faculty, maximizes the number of course credits accepted by each of the COS/CHST-BS programs aligned with the program. Graduates of

the A.S. Applied Science program will thus be well prepared to transfer into a B.S. program at RIT, perhaps better than any student with a two-year college educational experience at another institution.

III. Description of Proposed Program Curriculum

The proposed A.S. in Applied Science program offers a comprehensive curriculum of 64-65 total semester credit hours, depending on the intended BS degree, taken over four semesters. It closely follows the first two years of the associated COS/CHST BS programs, and all but one of the 64-65 semester credit hours are accepted for transfer into the associated baccalaureate programs (see Appendix A: Articulation Agreements). Students admitted to this program also will take courses that accommodate minor deficiencies in math and/or English. Matriculants also will have access to the same enhanced academic support and accommodations that RIT/NTID provides to all students at the baccalaureate level.

The Applied Science A.S. program requires completion of 64-65 credits, including Freshman Seminar (1 credit), General Education coursework (30 credits), and professional electives in a specific science focus area (30-33 credits).

Freshman Seminar	1
General Education	
• First Year Writing and LAS First Year Elective	6
• LAS Perspectives 1-4, 6	15
• LAS Electives (3 math courses)	9
Science Focus Area	
• LAS Immersion	9
• <u>Professional Electives</u>	<u>24-25</u>
TOTAL credits	64-65

Mathematics and science courses are specified for each intended BS program and are dependent in some cases upon mathematics placement score.

The general philosophy in developing the four-semester sequence of courses for each of the semester tracks is similar to that currently employed for advising students in the science pre-bacc program. During the first year, students take no more than one COS or CHST lecture/lab sequence along with NTID math coursework as appropriate, one or two English courses no lower than UWRT-100, one general education liberal arts perspective course each semester, and Freshman Seminar. During the second year of the program, students are expected to take more COS/CHST courses each semester, including math at the COS level, as they near their transition into a baccalaureate program.

Students do not necessarily need to choose one of the five focus areas upon entry to the program, but they should have an idea at the start of the first year whether they wish to pursue a path that requires more chemistry or biology coursework so that they are prepared for the major-specific second-year courses. Students will certainly need to decide upon a focus area no later than the start of the second year so that they undertake coursework that is appropriate for their intended major. For example, the biology, environmental studies, and biomedical sciences tracks all require General Biology and the same preparatory math/statistics courses during the first year. During the second year, however, the required science courses depend on the specific focus area chosen. A similar situation occurs for the chemistry and biochemistry focus areas; both require General & Analytical Chemistry during the first year, but different science courses (physics or biology) in the second year.

General Program Mask:

Term: Fall 1		Check course classification (s) Focus Area Science 1			Term: Spring 1			(Check course classification (s))				
Course Number & Title	CR	LAS	Maj	New	Prerequisite(s)	Course Number & Title	CR	LAS	Maj	New	Prerequisite(s)	
NCAR-100 Freshman Seminar	1					LAS-Immersion 1	3		X			
LAS P-6 (CHMG 141 General & Analytical Chemistry I or BIOL 101 General Biology I)*	3	X			Co-requisite CHMG 145 or BIOL 103	Professional Elective 1 (CHMG 142 General & Analytical Chemistry II Or BIOL 102)*	3		X		CHMG-141 or BIOL 101 Co-requisite : CHMG-146 or BIOL-104	
Professional Elective Lab (CHMG 145 General & Analytical Chemistry I Lab or BIOL 103 General Biology I Lab*)	1		X		Co-requisite CHMG-141 or BIOL-101	Professional Elective 1 Lab (CHMG 146 General & Analytical Chemistry II Lab or BIOL 104 General Biology II Lab)*	1		X		CHMG-141 and 145 Co-requisite: CHMG-142 or BIOL-102	
LAS First Year Elective	3	X			Placement	FYW UWRT-150 Writing Seminar (or other FYW course)	3	X			UWRT-100 or placement	
UWRT-100 Critical Reading and Writing	3	X			NTID Math Placement Score ≥ 40	LAS-Elective 2 (NMTH 220 Trigonometry or NMTH 250 Elementary Statistics)*	3	X			NTID Math Placement Score ≥ 40	
LAS-Perspective 1	3	X				LAS-P2	3	X				
Wellness	0											
Term credit total:	14	12	1			Term credit total:	16	9	7			
Term: Fall 2		Check course classification (s)			Term: Spring 2		Check course classification (s)					
Course Number & Title	CR	LAS	Maj	New	Prerequisite(s)	Course Number & Title	CR	LAS	Maj	New	Prerequisite(s)	
Professional Elective 2	3		X			Professional Elective 4	3		X			
Professional Elective 2 Lab	1		X			Professional Elective 4 Lab	1		X			
Professional Elective 3	3		X			Professional Elective 5	3		X			
Professional Elective 3 Lab	1		X			Professional Elective 5 Lab	1		X			
LAS-Elective 3 Math *†	3	X				Professional Elective 6	3-4		X			
LAS-Perspective 3	3	X				LAS- Perspective 4	3	X				
LAS- Immersion 2	3		X			LAS-Immersion 3	3		X			
Term credit total:	17	6	11			Term credit total:	17-	3	14-	15		
Program Totals:	Credits: 64-65			Liberal Arts & Sciences: 30			Major: 33-34			Elective & Other: 1		

* The science course taken in the first semester of the first year satisfies the P-6 (Scientific Principles) requirement. The three math/statistics courses count as general education electives for the AS degree and as free electives or toward the P-7 (Mathematical) requirement for the BS degree depending on the program.

† Students take MATH-161 or MATH-171, depending on their focus area. NTID is currently negotiating with the COS School of Mathematical Sciences to use NMTH-275 as a pre-requisite for MATH-161 and NMTH-275 and NMTH-220 together as pre-requisites for MATH-171. Students may need to take additional math coursework upon entry to the BS program as required by the specific major.

LAS P6 (*), LAS electives (‡) and professional electives (§) for each focus areas are as follows:

AS PROGRAM IN APPLIED SCIENCE:	BIOCHEMISTRY FOCUS
Course Number	Course Title
CHMG-141 *	General & Analytical Chemistry I
NMTH-275 ‡	Advanced Math
NMTH-220 ‡	Trigonometry
MATH-171 ‡	Calculus A
CHMG-142 §	General & Analytical Chemistry II
CHMG-145 §	General & Analytical Chemistry I Lab
CHMG-146 §	General & Analytical Chemistry II Lab
CHMO-231 §	Organic Chemistry I
CHMO-232§	Organic Chemistry I Lab
CHMO-235 §	Organic Chemistry II
CHMO-236 §	Organic Chemistry II Lab
BIOL-101 §	General Biology I
BIOL-102 §	General Biology II
BIOL-103 §	General Biology I Lab
BOL-104 §	General Biology II Lab
MATH-172 §	Calculus B

AS PROGRAM IN APPLIED SCIENCE:	BIOLOGY FOCUS
Course Number	Course Title
BIOL-101*	General Biology I
NMTH-275 ‡	Advanced Math
NMTH 250 ‡	Elementary Statistics
MATH 161 ‡	Applied Calculus
BIOL-102 §	General Biology II
BIOL-103 §	General Biology I Lab
BOL-104 §	General Biology II Lab
BIOL-201 §	Cellular and Molecular Biology
BIOL-240 or BIOL-265 §	General Ecology or Evolutionary Biology
CHMG-141 §	General & Analytical Chemistry I
CHMG-142 §	General & Analytical Chemistry II
CHMG-145 §	General & Analytical Chemistry I Lab
CHMG-146 §	General & Analytical Chemistry II Lab
STAT-145 §	Introduction to Statistics I

AS PROGRAM IN APPLIED SCIENCE:	BIOMEDICAL SCIENCES FOCUS
Course Number	Course Title
BIOL-101*	General Biology I
NMTH-275 ‡	Advanced Math
NMTH-250 ‡	Elementary Statistics
MATH-161 ‡	Applied Calculus
BIOL-102 §	General Biology II
BIOL-103 §	General Biology I Lab
BIOL-104 §	General Biology II Lab
MEDS-250 §	Anatomy and Physiology I
MEDS-251 §	Anatomy and Physiology II
CHMG-141 §	General & Analytical Chemistry I
CHMG-142 §	General & Analytical Chemistry II

CHMG-145 §	General & Analytical Chemistry I Lab
CHMG-146 §	General & Analytical Chemistry II Lab
STAT-145 or STAT-146 §	Introduction to Statistics I or Introduction to Biostatistics

AS PROGRAM IN APPLIED SCIENCE:	CHEMISTRY FOCUS
Course Number	Course Title
CHMG-141 *	General & Analytical Chemistry I
NMTH-275 ‡	Advanced Math
NMTH-220 ‡	Trigonometry
MATH-171 ‡	Calculus A
CHMG-142 §	General & Analytical Chemistry II
CHMG-145 §	General & Analytical Chemistry I Lab
CHMG-146 §	General & Analytical Chemistry II Lab
CHMO-231 §	Organic Chemistry I
CHMO-232 §	Organic Chemistry I Lab
CHMO-235 §	Organic Chemistry II
CHMO-236 §	Organic Chemistry II Lab
MATH-172 §	Calculus B
MATH-182 §	Project-Based Calculus II
PHYS-211 §	University Physics I

AS PROGRAM IN APPLIED SCIENCE:	ENVIRONMENTAL SCIENCE FOCUS
Course Number	Course Title
BIOL-101*	General Biology I
NMTH-275 ‡	Advanced Math
NMTH-250 ‡	Elementary Statistics
MATH-161 ‡	Applied Calculus
BIOL-102 §	General Biology II
BIOL-103 §	General Biology I Lab
BOL-104 §	General Biology II Lab
ENVS-101 §	Concepts of Environmental Science
BIOL-240 §	General Ecology
CHMG-141 §	General & Analytical Chemistry I
CHMG-142 §	General & Analytical Chemistry II
CHMG-145 §	General & Analytical Chemistry I Lab
CHMG-146 §	General & Analytical Chemistry II Lab
STAT-145 §	Introduction to Statistics I

IV. Fit with RIT Academic Portfolio Blueprint Characteristics and Criteria

The proposed A.S. in Applied Science program fits well with several of the Academic Portfolio Blueprint (APB) Characteristics and Criteria as summarized below.

Synergy and Interdisciplinarity: Applied Science expands on the existing non-degree Pre-Baccalaureate program by creating a new degree program that fosters integration between and two other colleges. This program is customized for students to fit the first- and second-year requirements of five particular baccalaureate programs in RIT's College of Science and College of Health Sciences and Technology.

Inclusive Excellence: Applied Science will increase the number of deaf and hard-of-hearing students who will be prepared to enroll and succeed in RIT's College of Science and College of Health Sciences and Technology. This supports RIT's commitment to growing and sustaining a diverse and inclusive learning, living, and working environment.

Centrality: The A.S. in Applied Science supports the goals of both the NTID Strategic Decisions 2020 (SD 2020) and the RIT Strategic Plan 2015-2025. SD 2020 calls for additional A+B programs in the NTID portfolio. RIT's strategic plan has specific objectives for leveraging difference, including increasing the number of deaf and hard-of-hearing STEM graduates.

Marketability: The number of students in NTID's pre-baccalaureate program provides initial evidence of the need for a program to prepare students for success in RIT's science BS programs. It is anticipated that additional students will be attracted to RIT/NTID because of this preparation will now lead to an AS degree, prior to entry to the BS program of choice.

Quality: The A.S. in Applied Science will prepare students for the demands of today's workplace and provide experiences based on RIT's published educational and access goals. Students will acquire not only foundation skills necessary for success in the scientific field of their choice, but they will also develop skills in communication, critical thinking, problem solving and mathematics necessary for success at the baccalaureate level. Students' technical and general education courses will provide a basis for their life-long learning by incorporating opportunities for gathering, organizing and presenting information. Personal integrity, ethical behavior and professionalism will be expected in all classes. NTID students will be encouraged to grow in civic and cultural awareness and social responsibility through participation in multiple NTID and RIT living and learning offerings.

V. Synergy with Other Programs

The proposed A.S. in Applied Science program was developed in consultation with Paul Craig (Head of School of Chemistry and Material Science, College of Science) and Larry Buckley (Head of Thomas H. Gosnell School of Life Sciences, College of Science) and Richard Doolittle (Associate Dean of College of Health Science and Technology). Courses offered in these colleges comprise the proposed science focus areas. Draft articulation agreements, which outline the terms of students' acceptance into the baccalaureate programs, are provided in Appendix A. The signed agreements will incorporate the coursework for each focus area and will specify how the courses in each will count toward the baccalaureate degree.

The program is also designed to share resources with existing programs in NTID's Department of Science and Mathematics, and will share classroom, materials and laboratory space with the department's other programs. Further, the department will maintain its science pre-baccalaureate program to accommodate students whose goal is to enter a B.S. program into which this proposed A.S. program does not provide a pathway (e.g., math and physics).

VI. Administrative Structure for the New Program

The NTID Department of Science and Mathematics will be responsible for the implementation and assessment of this program. The program will take advantage of existing administrative structure and provide a more efficient coordination for students utilizing the structure below:

- Chairperson of the NTID Department of Science and Mathematics
- Support Coordinator of the NTID Department of Science and Mathematics, who already works with pre-baccalaureate and cross-registered COS and CHST students
- Advisors – NTID academic advisors will continue to work with AS and pre-baccalaureate students in COS and CHST

VII. Enrollment Management Expectations and Sustainment

The proposed admission requirements are the same as those already established for admitting students into the NTID science pre-baccalaureate program:

- ACT: Composite test score of 21 or above with no sub-scores less than 19; students who meet these criteria generally have also been found to satisfy the following criteria for math and English placement.
- English: Placement into Critical Reading and Writing (UWRT-100) or a First Year Writing course, such as FYW: Writing Seminar (UWRT-150);

- **Mathematics:** NTID Math Placement score greater than or equal to 40. Students will enroll in the mathematics courses required by the intended baccalaureate program. Typically, students entering this major will have completed at least three years of high school mathematics. Once in the program, students will take math courses that are appropriate for their intended focus area.
- **Science:** Students will enroll in science courses that lead to their intended baccalaureate major. Typically, students entering this major will have completed at least three years of high school science

According to projections from NTID Enrollment Management Director Scott Hooker and endorsed by Senior Vice President for Enrollment Management & Career Services James Miller, the proposed A.S. in Applied Science program over the first five (5) years appears as follows:

Year	Internal Transfer	Would come to NTID w/o Program	New to NTID	Persisting	Total
1	1	7	2		10
2	1	7	3	9	20
3	1	7	4	10	22
4	1	7	5	11	24
5	1	7	6	12	26

VIII. Impact on Resources

The AS in Applied Science is a financially viable program that takes advantage of existing resources and course offerings. Students are currently taking these courses but with the additional students new to RIT, the NTID Department of Science and Mathematics will need to offer an additional section of an NMTH course. Students will also take advantage of tutoring provided by NTID faculty members for COS and CHST courses. The total NTID headcount needed to provide the NTID math instruction, COS/CHST tutoring, and program administration will come from faculty hires for which the searches are currently being conducted or will be conducted in the next academic year as well as from anticipated additional capacity in existing faculty members' workloads.

- **Cost Model Analysis:** These details are included in the cost model tables provided by Steven Morse, Assistant Vice President, NTID Finance and Budget. The analysis, which will be forwarded to the Provost, includes five tables detailing projected expenditures and revenue over the first five years of the program. There are no anticipated capital expenditures. Faculty/staff salary and benefits, plus costs such as computer charges, travel, and tuition payment for RIT credits total approximately \$174,000 in Year 1. These costs are projected to be offset by more than \$156,000 in tuition revenue in Year 1. [Note that NTID's tuition is applied to support all academic and non-academic programs accessed by students and the program does not fit into the Net Tuition Revenue Model used by other RIT colleges. Tuition is subsidized by federal appropriations and is therefore not cost-related.]

IX. Conclusion

The proposed A.S. in Applied Science program will provide a clear path for those qualified deaf and hard-of-hearing students whose goal is to earn a bachelor's degree in one of the associated College of Science and College of Health Sciences and Technology programs. Students who enter the A.S. in Applied Science will receive the additional support opportunities that they need in order to be successful when they transfer to the bachelor's degree program. With minimal impact on the college's resources and with enrollment in standard service courses in the other colleges, we believe that this is a worthwhile program to establish to serve our students.

APPENDIX A: ARTICULATION AGREEMENTS

**Applied Science
National Technical Institute for the Deaf
Rochester Institute of Technology**

**Transfer Agreement
with
Thomas H. Gosnell School of Life Sciences
College of Science
Rochester Institute of Technology**

The purpose of this transfer agreement is to:

- Attract qualified students to RIT's College of Science (COS);
- Facilitate the transition of qualified transfer students from the National Technical Institute for the Deaf (NTID) and COS;
- Encourage academic cooperation and exchange of information between NTID and COS.

Terms

RIT's College of Science agrees to accept into the Biology and Environmental Science programs those qualified students who have successfully completed the Associate of Science (A.S.) in Applied Science offered through NTID's Department of Science and Mathematics. Qualified students should demonstrate success and be a student in good standing at NTID. Transfer credit will be awarded and applied to the baccalaureate degree requirements for all courses, except Freshman Seminar (NCAR-100), completed with a grade of C or better. In addition, a minimum overall GPA of 2.0 or better must be achieved to be accepted into the BIOL-BS and ENVS-BS programs. A review of this transfer agreement can be initiated by either college in the case of significant curriculum changes. However, this agreement will be reviewed no less than every five (5) years.

Dr. Sophia Maggelakis, Dean
College of Science

Dr. Gerard Buckley, President/Dean
National Technical Institute for the Deaf

Dr. Mark D. Fairchild, Associate Dean
Research and Graduate Education
College of Science

Dr. Stephen Aldersley, Associate VP of Academic Affairs
National Technical Institute for the Deaf

Dr. Larry Buckley, School Head
Thomas H. Gosnell School of Life Sciences
College of Science

Dr. Matthew Lynn, Chairperson,
Department of Science and Mathematics
National Technical Institute for the Deaf

**Applied Science
National Technical Institute for the Deaf
Rochester Institute of Technology**

**Transfer Agreement
with
School of Chemistry and Material Science
College of Science
Rochester Institute of Technology**

The purpose of this transfer agreement is to:

- Attract qualified students to RIT's College of Science (COS);
- Facilitate the transition of qualified transfer students from the National Technical Institute for the Deaf (NTID) and COS;
- Encourage academic cooperation and exchange of information between NTID and COS.

Terms

RIT's College of Science agrees to accept into the Biochemistry and Chemistry programs those qualified students who have successfully completed the Associate of Science (A.S.) in Applied Science offered through NTID's Department of Science and Mathematics. Qualified students should demonstrate success and be a student in good standing at NTID. Transfer credit will be awarded and applied to the baccalaureate degree requirements for all courses, except Freshman Seminar (NCAR-100), completed with a grade of C or better. In addition, a minimum overall GPA of 2.8 or better must be achieved to be accepted into the BIOCHEM-BS and CHEM-BS programs. A review of this transfer agreement can be initiated by either college in the case of significant curriculum changes. However, this agreement will be reviewed no less than every five (5) years.

Dr. Sophia Maggelakis, Dean
College of Science

Dr. Gerard Buckley, President/Dean
National Technical Institute for the Deaf

Dr. Mark D. Fairchild, Associate Dean
Research and Graduate Education
College of Science

Dr. Stephen Aldersley, Associate VP of Academic Affairs
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Dr. Paul Craig, School Head
School of Chemistry and Material Science
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Dr. Matthew Lynn, Chairperson,
Department of Science and Mathematics
National Technical Institute for the Deaf

**Applied Science
National Technical Institute for the Deaf
Rochester Institute of Technology**

**Transfer Agreement
with
Biomedical Sciences
College of Health Sciences and Technology
Rochester Institute of Technology**

The purpose of this transfer agreement is to:

- Attract qualified students to RIT's College of Health Sciences and Technology (CHST);
- Facilitate the transition of qualified transfer students from the National Technical Institute for the Deaf (NTID) and CHST;
- Encourage academic cooperation and exchange of information between NTID and CHST.

Terms

RIT's College of Health Sciences and Technology agrees to accept into the Biomedical Sciences program those qualified students who have successfully completed the Associate of Science (A.S.) in Applied Science offered through NTID's Department of Science and Mathematics. Qualified students should demonstrate success and be a student in good standing at NTID. Transfer credit will be awarded and applied to the baccalaureate degree requirements for all courses, except Freshman Seminar (NCAR-100), completed with a grade of C or better. In addition, a minimum overall GPA of 2.8 or better must be achieved to be accepted into the BIOMED-BS program. A review of this transfer agreement can be initiated by either college in the case of significant curriculum changes. However, this agreement will be reviewed no less than every five (5) years.

Dr. Daniel Ornt, Dean
College of Health Sciences and Technology

Dr. Gerard Buckley, President/Dean
National Technical Institute for the Deaf

Dr. Richard Doolittle, Associate Dean
College of Health Sciences and Technology

Dr. Stephen Aldersley, Associate VP of Academic Affairs
National Technical Institute for the Deaf

Dr. Douglas P. Merrill
College of Health Sciences and Technology

Dr. Matthew Lynn, Chairperson,
Department of Science and Mathematics
National Technical Institute for the Deaf

As part of the proposed NTID Applied Science (AS) degree program, expected graduation rates were developed considering the following deaf and hard-of-hearing cohorts:

- NTID Applied Liberal Arts (AS) degree program students
- NTID Applied Computer Technology (AS) degree program students
- NTID Hospitality & Service Management (AS) degree program students
- NTID Pre-Baccalaureate Science (UND) program students

These four cohorts combine to cover the unique aspects about the proposed program, justifying the expected graduation rates proposed. Each of the three cohorts categorize a relatively small number of students, especially when using the IPEDS methodological approach of defining cohorts of first-time, full-time degree seeking freshmen. The three AS programs each contain track options, resulting in the potential for very unique curricula experiences by the students within these programs. The Pre-Baccalaureate Science program adheres to a prescribed set of courses that expose students to their potential landing within the College of Science. In an effort to moderate the observed variation in graduation rates, three-year averages were calculated. Three time intervals were further considered, staggered, specifically six year, seven year, and seven and a half years. These intervals are entirely a function of allowing any student who transfers, prior to completing the associate degree, to five year programs, a complete 150% of their program’s designed length of time to graduate. Otherwise, students remaining in this associate degree program for the academic career will be counted as graduated or not, at six semesters, given the program’s designed length of four semesters.

	<u>Graduation Rates (Three Year Weighted Average)</u>		
	Six Year	Seven Year	Seven and a Half Year
NTID Applied Computer Technology (AS)	44.44%	53.85%	46.67%
NTID Pre-Baccalaureate Science (UND)	58.33%	57.14%	54.55%

The NTID Applied Liberal Arts (AS) and NTID Hospitality & Service Management (AS) degree programs are too new to be included, comprehensively, in the chart above, however we can use these degree programs as evidence in support of the expected graduation rate of the NTID Applied Science (AS) degree program. Based on the three year weighted averages above, it would seem reasonable to expect a graduation rate of approximately 50%, to be evaluated on an annual basis beginning with the third cohort of incoming students. Further supporting this expected graduation rate are the four year graduation rates for the two absent programs NTID Applied Liberal Arts (AS) and NTID Hospitality & Service Management (AS), at 47.40% and 50.00%, respectively. The expected graduation rates for the first five cohorts of incoming students follows as:

Fall Cohort	7.5 Year Graduation Rate
2017	50%
2018	50%
2019	50%*
2020	50%*
2021	50%*

*To be reviewed annually

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Department of Science and Mathematics
Applied Science Associate of Science Degree Program
Summary of Program Expenditures, Revenue, and Resource Requirements
Table 4

	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	Total
Personnel	\$ 82,114	\$ 84,600	\$ 87,200	\$ 89,800	\$ 92,500	\$ 436,214
Benefits	\$ 31,000	\$ 33,000	\$ 35,000	\$ 37,000	\$ 38,000	\$ 174,000
Computer Charges	\$ 16,900	\$ 33,100	\$ 38,000	\$ 43,300	\$ 49,000	\$ 180,300
Instructional Supplies	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Telephone	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Software Licenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Travel-Conferences	\$ 1,700	\$ 1,700	\$ 1,700	\$ 1,700	\$ 1,700	\$ 8,500
Tuition Payments for RIT Credits	\$ 16,700	\$ 161,900	\$ 184,800	\$ 209,100	\$ 234,600	\$ 807,100
Expense	\$ 148,414	\$ 314,300	\$ 346,700	\$ 380,900	\$ 415,800	\$ 1,606,114
Overhead (RIT Indirect Costs)	\$ 25,200	\$ 53,400	\$ 58,900	\$ 64,800	\$ 70,700	\$ 273,000
Total Expense	\$ 173,614	\$ 367,700	\$ 405,600	\$ 445,700	\$ 486,500	\$ 1,879,114
Enrollment * ^	10	20	22	24	26	102
Tuition ^	\$ 156,077	\$ 323,080	\$ 367,827	\$ 415,310	\$ 465,667	\$ 1,727,962
Federal Appropriation ^	\$ 17,536	\$ 44,620	\$ 37,773	\$ 30,390	\$ 20,833	\$ 151,152
Total Revenue	\$ 173,614	\$ 367,700	\$ 405,600	\$ 445,700	\$ 486,500	\$ 1,879,114
Total Rev. - Total Exp.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

* Reviewed by RIT Enrollment Management & Career Services

^ These numbers and amounts are based on total projected students for this program (which is shown here on the enrollment line). As shown on Table 2 - Projected Revenue for the Proposed Program, incremental student enrollment and related tuition revenue is much less than total student enrollment and related tuition revenue.

