AY2017-2018

STUDENT RESEARCH HANDBOOK

Office of Undergraduate Research (OUR-UT)

UNDERGRADUATE RESEARCH

THE UNIVERSITY OF TOLEDO

Welcome to The Office of Undergraduate Research at UT (OUR-UT)!!

The Office of Undergraduate Research was created in order to be a central resource for undergraduate research and scholarship at the University of Toledo. OUR goal is to expand the research and scholarship possibilities to better serve the diverse undergraduate student population at UT.

We are administratively located in the Honors College but all of OUR-UT programs are open to all undergraduate students, both within the college and outside of the college.

The primary objectives of this office are to:
- be a focal point for research opportunities for undergraduates.
- be an advocate for increased funding of undergraduate research at UT.
- showcase research accomplishments of our undergraduates.
- be a resource for faculty members to increase undergraduate involvement in their research.
- be a resource for the community and local industries to increase their involvement in undergraduate research.
- aid in the integration of a research component to existing courses and/or development of new research-intensive courses.
- coordinate undergraduate research involvement with the other offices at UT including: the Office of Research, the Honors College, the Office of Service Learning, and the various departments, colleges, and/or academic programs.

The handbook is organized into four main parts:
0. Preamble-- contains important dates for the upcoming year, a note about the ethical conduct of research, and an introduction to research.
1. OUR-UT programs -- describes all of the research opportunities funded through OUR-UT.
2. Writing Guidelines -- provides instruction on how to compose a well-written proposal (grant), the scoring rubric, the Final Report guidelines, and presentation of research.
3. Reference Section -- contains reproductions of the Cover Pages, Budget form, Timecard form, time/effort calculations if participating for academic credit and stipends, and the UT Academic Calendar.

Please note: Throughout this handbook unless otherwise mentioned, the word "research" is meant to encompass all forms of in-depth professional activity (e.g., creative/artistic activity, business and/or educational case studies, engineering design, as well as all other forms of research).

Jonathan Bossenbroek
Director, Office of Undergraduate Research

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Important Dates (AY2017/2018, Summer 2018)

Summer 2017 FYSRE, STARS, TolInterns, USRCAP
     Final Report deadline 09/01/2017

Research Proposal Deadlines
     Fall semester (AYRP, STARS, TolInterns, WSRP) 09/15/2017
     Spring semester (AYRP, STARS, TolInterns, WSRP) 01/19/2018
     Summer
        Stipend (FYSRE, STARS, TTKTG, USRCAP) 02/23/2018
        Acad. credit (AYRP, WSRP) 05/11/2018
     Research Travel Grant, Volunteer, Faculty Grant .... continuous

National Conference of Undergraduate Research (NCUR)
     Abstract deadline (UT Internal) 11/10/2017
        (Conference Online Submission) 12/05/2017
        Conference (Univ. of Central Oklahoma) 04/04-07/2017

Northwest Ohio Undergraduate Research Symposium
     Abstract deadline (UT) 04/01/2018
     Event (Ohio Northern Univ.) 04/27/2018

Scholars' Celebration: Undergraduate Research Showcase
     Abstract deadline 11/10/2017
     Event 11/28-12/08/2017

Postal Address:
The University of Toledo
Office of Undergraduate Research
MacKinnon Hall, MS 504
2801 W. Bancroft St.
Toledo, OH 43606-3390

Phone/FAX:
voice (OUR-UT): 419.530.2983
alternates:
 Bossenbroek (EnvSci): 419.530.4595
FAX (OUR-UT): 419.530.6032

Office Location:
MacKinnon Hall 2000E

Email Address:
undergraduate.research@utoledo.edu
or:
jonathan.bossenbroek@utoledo.edu

Web Address: http://www.utoledo.edu/honors/undergradresearch

Ethical Conduct of Research and Scholarship

Standards are set very high for ethical conduct in research and scholarship. Publication of your results, if conducted ethically, can be a source of great joy and accomplishment - or, if not conducted ethically, it can be an everlasting embarrassment and disgrace (or even worse -- it can be considered illegal and you can be prosecuted). Once something has been published there isn't a "rewind" button! Nature and history are infinitely larger than humankind and the truth will always be found out.

There are excellent reference materials available that examine ethical conduct in more detail. These include:

- "*Introduction to the Responsible Conduct of Research,*" **Nichol**as H. Steneck, US HHS ORI publication
- "*Little Book of Plagiarism,*" **Rich**ard A. Posner, Publisher: Pantheon (January 16, 2008), ISBN-10: 037542475X
- "*On Being a Scientist: A Guide to Responsible Conduct in Research,*" **3rd ed.,** Committee on Science, Engineering, and Public Policy, The National Academies Press, (2009), ISBN: 978-0-309-11970-2. (See http://www.nap.edu for a free download pdf of this book.)
- the professionalism/ethics material on webGURU (http://www.webguru.neu.edu/)

Violations of ethical conduct range from mild to severe. Some of the more severe forms of unethical and unacceptable behavior include:

- plagiarizing or not recognizing the works of others
- fabricating, falsifying, and/or grossly manipulating data
- misrepresenting methods/procedures
- Sabotaging the research of others
- lying
- non-compliance with federal, state, and/or local laws
- not seeking IRB approval when it is clearly needed
- harassment and discrimination

The university and professional societies have taken strong stands against unethical behavior in research and scholarship. Violations should be reported to OUR-UT, Office of Research, and/or the provost's office for appropriate action.

Researchers whose projects involve data acquisition and analysis have the dilemma of if, when, and how to discard what seems to be questionable data. There are excellent texts available that discuss statistics and/or how to handle data. These texts include:

- "*Data Reduction and Error Analysis for the Physical Sciences*," Philip R. Bevington and D. Keith Robinson, Publisher: McGraw-Hill Education; 3rd edition (August 1, 2002), ISBN-10: 0071199268.
- "*The Statistical Analysis of Experimental Data*," John Mandel, Dover Publications; New edition (September 1, 1984), ISBN-10: 0486646661.
- "*Statistics Explained: A Guide for Social Science Students*," Perry Hinton, Psychology Press; 2nd edition (August 31, 2004), ISBN-10: 0415332850.

The university is committed to the safe, ethical, and legal conduct of research. Internal Review Board (IRB) and/or IACUC approvals are needed for studies that involve human subjects (including surveys), animals, chemicals, radiation, etc. You and/or your faculty mentor must seek IRB approval if you plan to involve any of these subjects in your research. The IRBs and IACUCs are processed through the UT Office of Research Administration (UH2300) on the main campus or (CCE 2102) on the Health Science Campus. Approval must be granted *before* you start your research. No exceptions will be made for approval after the fact. Approval may take many weeks so, for example, you should start the application process in the Spring semester for summer research.

Please: http://www.utoledo.edu/research/RC/HumanSubs_Menu.html for more details.

Introduction: Research Involvement, and Funding Philosophy

*Please note: Throughout this handbook unless otherwise mentioned, **the word "research" is me**ant to encompass all forms of in-depth professional activity (e.g., creative/artistic activity, business and/or educational case studies, engineering design, as well as all other forms of research).*

The best way for you, the student, to be actively involved in research is for you to take the initiative by talking with the faculty members (or other professionals) with whom you would be interested in working on a meaningful project. This connection means that *you* will be interacting with a professional already established in your chosen field of research. Together with your faculty mentor, you should identify a research project and then you present the project in a concise written document ca**lled "the Propos**al (or Gra**nt)". This is** the philosophy we have taken for our programs because it has enormous potential to help you grow in your academic and professional development and because it puts you at the very beginnings of research. *All* of the programs listed below require proposals, written by you (the student) and edited by your faculty mentor.

- Academic Year Research Program: AYRP
- First Year Summer Research Experience: FYSRE
- Research Travel Grant Program: Travel
- Undergraduate Summer Research & Creative Activity Program: USRCAP
- Work-Study Research Program: WSRP

This handbook is designed to help you identify the different research programs administered through OUR-UT and give you guidance for writing proposals, reports, and presenting your findings. As an aid in proposal development, we have provided the Standard Proposal template downloadable from the Undergraduate Research website. Alternatively, contact us and we will be happy to email you the template.

Involving you at the beginning gives you the benefit of learning what it takes to perform successful research whether or not the research is externally funded. Every granting agency will require a proposal before awarding money for a project. The better written and composed proposal will have better chances of being funded. In some fields substantial funding is crucial, and in other fields of research, funding is secondary to the project. The techniques you use in writing a well-constructed proposal will also help you in the preparation of manuscripts, theses, and other publications of your research.

A good reference book on technical writing is: James D. Lester and James D. Lester, Jr., **"The Essenti**al Guide: Research Writing A**cross the Disciplines," 4**[th] ed., Pearson/Longman, 2008, ISBN: 0-205-57645-1. We have also presented proposal guidelines, scoring rubric, and other hints on how to write a well crafted proposal in Section II. of this handbook. All of the Proposal templates, cover pages, Budget, and Timecards mentioned in this handbook are available as downloads from the OUR-UT website or contact us and we will be happy to send them to you.

Please note that if your research possibly contains a potentially patentable new creation, discovery, or innovation, you must contact the Office of Technology Transfer prior to publication, to submit an Invention Disclosure Form for review by the Patent Commercialization Committee.

I. Programs funded and/or administered through OUR-UT

I. Programs -- Introduction

The research programs listed in this section are administered through the UT Office of Undergraduate Research (OUR-UT). These are a subset of the multitude of research opportunities being conducted by UT students each year. We have tried to make the proposal submission process as consistent as possible among the various programs listed in this booklet. The cover page and proposal format information is located in later in this handbook and on OUR-UT website. The contacts for all of the OUR-UT programs are the director, the associate director, and the graduate assistant of the UT Office of Undergraduate Research. We are happy to meet with you to answer questions and/or to help you make the initial connections with research mentors.

All OUR-UT programs (academic year and/or summer programs) require that the student have UT undergraduate status during the period in which the student will be participating in research. However, please see the Research Travel section for a minor exception to this rule.

> We need the Substitute IRS W-9 forms on file *before* the university will issue any financial compensation.
>
> All academic year financial compensation will be issued to student accounts.

The OUR-UT-administered programs are listed according to type. The summer programs which include stipends are: First Year Summer Research Experience - FYSRE, City of Toledo Internship program: "Toledo Talent Keeps Toledo Great" - TTKTG, and Undergraduate Summer Research and Creative Activity Program - USRCAP. The academic year programs that include financial compensation are: Student Achievement in Research and Scholarship - STARS and the Work-Study Research Program - WSRP. Other programs that include reimbursement for supplies/misc. expenses or travel are: Academic Year Research Program - AYRP and Research Travel Grant - Travel. All of these programs are just a subset of the multitude of research opportunities conducted by UT students each year. OUR-UT website (http://www.utoledo.edu/honors/undergradresearch/) tries to maintain a listing of the various opportunities on campus.

The WebGURU website (http://www.webGURU.neu.edu) maintains a comprehensive list of undergraduate research opportunities nationwide and other information relating to the safe and ethical conduct of research. It is well worth checking it out, especially if you are just beginning your research experience.

The requirements for all of the OUR-UT administered programs include a written Final Report to be submitted to the UT Office of Undergraduate Research within one semester after your participation period and a presentation at one of the following venues: your department, a research symposium, a creative performance, and/or an Honors (or OUR-UT) Bag Lunch. Other requirements are listed with each individual program.

The following code is used in the "details" section of each program:
- AC - Academic Credit
- ST - Stipend/Fellowship ($ amount)
- FG - Paid directly from faculty research grants
- TR - Travel grants
- VL - Volunteer
- WS - Work-Study

Further explanation of each type of compensation is given later in this section after the various program descriptions.

I. Summer Programs with Stipends -- Undergraduate Summer Research and Creative Activity Program: USRCAP

The Undergraduate Summer Research and Creative Activity Program (USRCAP) is the main summer research program and is open to all UT undergraduate students in all areas of research and/or creative activity present at UT. USRCAP is a competitive program which supports research involvement by undergraduate students under the direction of a faculty member.

Details:
- Scope: university-wide
- Student Population: UT undergraduate
- Period: Summer
- Compensation options: AC, ST
- Assistance: supplies/travel budget
- Proposal: standard OUR-UT proposal format found in the Reference section
- Proposal deadline: 4th week of February. See the Inside Front Cover page for specific dates.
- Awards will be announced by the end of March.

Program Requirements:
Participants must
- have undergraduate student status through the end of Summer Session III.
- devote priority effort to their research from the first week of June through the first week of August. See the Inside Cover Page for specific dates. (see Time Guidelines tables in Reference section). Start/end dates may vary upon mutual consent. Time tracking is required.
- present their results in one of the following venues: a departmental colloquium, an Honors bag lunch, or similar presentation.
- attend the weekly UGR2980 seminar series, Summer Session III.
- present their results at the End-of-Summer Research Symposium.
- submit a Final Report (edited by their faculty research mentor) to the Office of Undergraduate Research, which is due on September 01.

Exceptions to the requirements: Students can still participate in USRCAP if the students' research projects take them outside the commuting distance to UT to miss the weekly UGR2980 seminar that week (or weeks). If they miss the End of Summer Research Symposium, they are then expected to present their research to their department (and/or honors) during the first semester back on campus. Written or electronic permission for these exceptions are required.

I. Summer Programs with Stipends -- First Year Summer Research Experience Program: FYSRE

The First Year Summer Research Experience Program (FYSRE) supports research involvement by students in faculty members' research activities in the summer after their first year of college. FYSRE is similar to USRCAP except that FYSRE is open only to first-year undergraduates at UT. FYSRE is a competitive program which supports research involvement by undergraduate students under the direction of a faculty member in all areas of research and/or creative activity at UT. Students entering UT with advanced standing, but within their first year at UT, are eligible for FYSRE grants. Transfer students within their first year at UT can apply to either the FYSRE or USRCAP programs depending on their level.

Details:
- Scope: university-wide
- Student Population: UT first-year students
- Period: Summer
- Compensation options: AC, ST
- Assistance: supplies/travel budget
- Proposal: standard OUR-UT proposal format found in the Reference section
- Proposal deadline: 4th week of February. See the Inside Front Cover Page for specific dates.
- Awards will be announced by the end of March.

Program Requirements:
Participants must
- be in their first college year at the beginning of Spring semester.
- devote priority effort to their research from the first week of June through the first week of August. See the Inside Cover Page for specific dates. (see Time Guidelines tables in the Reference section). Start/end dates may vary upon mutual consent. Time tracking is required.
- present their results in one of the following venues: a departmental colloquium, an Honors bag lunch, or similar presentation.
- attend the weekly UGR2980 seminar series, Summer Session III.
- present their results at the End-of-Summer Research Symposium.
- submit a Final Report (edited by their faculty research mentor) to the Office of Undergraduate Research, which is due on September 01.

Exceptions to the requirements: Students can still participate in FYSRE if the students' research projects take them outside the commuting distance to UT to miss the weekly UGR2980 seminar that week (or weeks). If they miss the end of summer research symposium, they are then expected to present their research to their department (and/or honors) during the first semester back on campus. Written or electronic permission for these exceptions are required.

I. Summer Programs with Stipends -- City of Toledo Internship Program: "Toledo Talent Keeps Toledo Great" TTKTG

The University of Toledo and the City of Toledo have joined in a partnership to create an internship program for UT undergraduates in various city offices. The internships provide opportunities to apply classroom knowledge to the inner workings of city government, specifically in: law, politics, finance, public relations, neighborhood development, transportation, and other public-affairs areas. The TTKTG program is jointly administered by the Center for Experiential Learning and Career Services (CELCS) and OUR-UT with its own website: http://www.utoledo.edu/success/celcs/toledo-talent-keeps-toledo-great/.   This program is valuable for students interested in pursuing public service as a career option. The TTKTG program is open during the academic year for academic credit or during the summer for stipends.

In addition, it may be possible to participate in this program with other municipalities and/or government entities (e.g., Toledo City Council, Sylvania, Maumee, Perrysburg, Lucas County, etc.) if connections are made early in the process. Contact OUR-UT to discuss these other opportunities.

Details:
- Scope: university-wide but students majoring in Political Science, Business, History, Economics, Sociology, Social **Work, Nursing, Women's** and Gender Studies, Africana Studies, Engineering, and/or Communication are especially encouraged to participate.
- Student Population: UT undergraduate
- Period: Academic Year (1 semester durations), Summer
- Compensation options: AC, ST, VL, WS
- Assistance: free city parking permit (if needed)
- Application: modified OUR-UT Proposal format found in the Reference section. Check the TTKTG website for participating City offices and to apply to the program
- Application deadlines: Fall Semester: early August; Spring Semester: late November; Summer: late February. See the TTKTG website (or Inside Front Cover page) for specific dates.
- Awards will be announced within four weeks after deadlines listed above.

Program Requirements:
Participants must
- be in good academic standing.
- devote priority effort to their research (see Time Guidelines tables in Reference section). Start/end dates may vary upon mutual consent. Time tracking is required.
- be willing to be interviewed and undergo background checks conducted by the city. The City of Toledo may provide additional criteria for acceptance into this program.
- present their results in one of the following venues: a departmental colloquium, an Honors bag lunch, or similar presentation.
- present their results at the End-of-Summer Research Symposium, if participating during the summer.
- submit a Final Report (edited by their City of Toledo supervisor and/or faculty research mentor) to the Office of Undergraduate Research no later than at the last day of the semester after their internship. For summer participation, the Final Report is on September 01.

TTKTG Internship Program Summary:

Type:	Participants:	Term:	Duration:	Application Deadline:	Application Materials:	Internship Project:
OUR-UT Funded-Stipend (ST)	Undergraduate Students-All Majors	Summer only	10 Weeks, 30 Hrs/Week	Late February for Summer	Application Resume Statement of Purpose Unofficial Transcript Two Letters of Recommendation	Required. Results presented at the End-of-Summer Research Symposium
Federal Work Study Funded (WS)	Any student receiving FWS Award	Fall and Spring Semesters	Up to 20 hours per week. Duration based on total amount of FWS funds awarded	Early August for Fall Late November for Spring	Application Resume Purpose Statement Unofficial Transcript Two Letters of Recommendation	Required. Results presented at designated time during academic year
Unpaid-Academic Credit (AC)	Any student if available in their degree program	Fall, Spring and Summer Semesters	Per Degree Program Requirements	Early August for Fall Late November for Spring Late February for Summer	Application Resume Statement of Purpose Unofficial Transcript Two Letters of Recommendation	Required. Results presented at designated time during academic year
Unpaid-Volunteer (VL)	Any student All Majors	Fall, Spring and Summer Semesters	Up to 20 hours week during the academic year, up to 30 hours per week, summer	Early August for Fall Late November for Spring Late February for Summer	Application Resume Statement of Purpose Unofficial Transcript Two Letters of Recommendation	Required. Results presented at designated time during academic year

I. Academic Year Programs with Financial Compensation - Student Achievement in Research and Scholarship Program: STARS

STARS is an undergraduate research program designed to enhance the academic experience of high achieving Pell-grant eligible, (potential) first generation and students from underrepresented groups by involving them in meaningful research projects with faculty mentors by providing the STARS students a stipend for their research experience. STARS participants are encouraged to serve as peer mentors to younger students near the beginning of their academic and/or research involvement.

Student Eligibility Requirements
STARS is open to all undergraduate students that are Pell Grant eligible at all levels, but high priority will be given to sophomores and juniors. Candidates must demonstrate that they are goal oriented, highly motivated, and high achieving. Students must be able to identify a faculty mentor under whom they conduct a meaningful research project. The research can be in any discipline. See the section in this Handbook and/or Office of Undergraduate Research website for proposal preparation guidelines.

Details:
- Scope: university-wide
- Student Population: UT undergraduate students that are Pell-grant eligible or identify themselves as members of the following groups: underrepresented, disadvantaged, and/or First generation college student.
- Period: Fall/Spring semester, Academic Year, Summer
- Compensation options: AC, ST
- Proposal: standard OUR-UT proposal format found in the Reference section
- Proposal deadline: See the Inside Front Cover page for specific dates.
- Awards will be announced within four weeks of closing deadlines.

Program Requirements:
Participants must
- have undergraduate student status.
- be able to devote sufficient time and effort to research in order to complete a scholarly research project. See Time Guidelines tables in the Reference section for research time commitments. Time tracking is required.
- present their research at a Student Research Conference and/or a professional conference. present their results in: a state-wide and/or professional conference and a departmental colloquium, an Honors bag lunch, or similar presentation.
- attend the weekly UGR2980 seminar series, Summer Session III if participating in STARS during the summer.
- present their results at the End-of-Summer Research Symposium, if participating during the summer.
- submit a Final Report (edited by their faculty research mentor) to the Office of Undergraduate Research no later than at the last day of the semester after the completion of the STARS participation.

I. Academic Year Programs with Financial Compensation - Work-Study Research Program: WSRP

The University of Toledo is pleased to offer Work-Study students the opportunity to participate in a research project for their work-study funds. This program supports research involvement by undergraduate students at all levels and is open to all areas of research and/or creative activity present at UT.

Details:
- Scope: university-wide
- Student Population: UT undergraduates who are Work-Study approved
- Period: academic year, summer
- Compensation options: AC, VL, WS
- Assistance: supplies/travel budget
- Proposal: standard OUR-UT proposal format
- Proposal deadlines: Fall Semester: 3rd week of September; Spring Semester: 3rd week of January; Summer: 4th week of February. See the Inside Front Cover page for specific dates.
- Awards for supplies/travel funds will be announced within four weeks after deadlines listed above. Research project automatically accepted upon approval of faculty research mentor, the Work-Study office, and OUR-UT office.

Program Requirements:
Participants must
- have undergraduate student status through the end of the semester in which research is being conducted.
- must be approved for the Federal Work-Study program.
- devote sufficient time and effort on their research. See Time Guidelines tables in the Reference section for recommended time commitments. Students may have to allow for extra volunteer time depending on the number of Work-Study approved hours. Time tracking is required.
- present their results in one of the following venues: a departmental colloquium, an Honors bag lunch, or similar presentation.
- attend the weekly UGR2980 seminar series, Summer Session III if participating in WSRP during the summer.
- present their results at the End-of-Summer Research Symposium, if participating during the summer.
- submit a Final Report (edited by their faculty research mentor) to the Office of Undergraduate Research no later than at the last day of the semester after the completion of the WSRP participation.

I. Academic Year Programs -- Academic Year Research Program AYRP

The Academic Year Research Program supports research involvement during the academic year by undergraduate students at all levels in fa**culty members' rese**arch activities. This program is open to all UT undergraduates in all areas of research and/or creative activity at UT. Students should register in a research or independent study course in the appropriate department – consult your academic adviser or OUR-UT for assistance. The time/credit hour guidelines are listed in tables in the Reference section. Students wishing to conduct research in the summer that are NOT participating in other, specific, summer programs (e.g., FYSRE and USRCAP) can apply to this program.

Details:
- Scope: university-wide
- Student Population: UT undergraduate
- Period: academic year, summer
- Compensation options: AC, FG, VL, WS
- Assistance: supplies/travel budget
- Proposal: standard OUR-UT proposal format found in the Reference section
- Proposal deadline: Fall Semester: 3rd week of September; Spring Semester: 3rd week of January; Summer: 2nd week of May. See the Inside Cover Page for specific dates.
- Awards for supplies/travel funds will be announced within four weeks after deadlines listed above. Research project automatically accepted upon approval of faculty research mentor and OUR-UT office.

Program Requirements:
Participants must
- have undergraduate student status through the end of the semester in which research is being conducted.
- be able to devote sufficient time and effort to research. See Time Guidelines tables in the Reference section for research time commitments. Time tracking is required.
- present their results in one of the following venues: a departmental colloquium, an Honors bag lunch, or similar presentation.
- attend the weekly UGR2980 seminar series, Summer Session III if participating in AYRP during the summer.
- submit a Final Report (edited by their faculty research mentor) to the Office of Undergraduate Research no later than at the last day of the semester after the completion of the AYRP participation.

Exceptions to the requirements: Students can still participate in summer-A**YRP if the students'** research projects take them outside the commuting distance to UT to miss the weekly UGR2980 seminar that week (or weeks). If they miss the end of summer research symposium, they are then expected to present their research to their department (and/or honors) during the first semester back on campus. Written or electronic permission for these exceptions are required.

NOTE: All tuition and other fees associated with the research (independent study) course in which the student is registered are the responsibility of the STUDENT. OUR-UT <u>does not</u> cover these expenses.

I. Academic Year Programs -- Research Travel Grant Program: Travel

The Research Travel Grant Program supports research involvement by UT students by assisting in travel funding to conduct research at other locations, institutions, or facilities outside of the Toledo area (e.g., Study Abroad/Away) or to provide travel assistance for undergraduate students to present their research at professional conferences (or other venues). This program supports research presentation/involvement by undergraduate students at all levels and is open to all areas of research and/or creative activity present at UT regardless if the research was originally funded or not. Students wishing to publish their work in professional journals (or similar) that would incur publication costs are also welcomed to apply to this program.

Details:
- Scope: university-wide
- Student Population: UT undergraduate
- Period: Academic Year, Summer
- Compensation options: TR
- Assistance: variable amount for travel and/or publication budget. Typical award amounts are in the range of $200-$500.
- Proposal: Research Travel proposal format found in the Reference section
- Proposal deadlines: no deadline -- continuous program.
- Awards for travel funds will be announced within four weeks after receipt of the completed proposal and the faculty letter of endorsement. Reimbursement typical occurs at the end of the semester or summer and goes as a credit to your student account. If you do not owe the university money, you can request a check to be issued to you.

Program Requirements for Research Travel:
If the travel grant is to conduct research, the program requirements are the same as if participating in the AYRP program. The student must submit a Final Report (edited by their faculty research mentor) to the Office of Undergraduate Research no later than at the last day of their first full semester back on the UT campus.

Program Requirements for Conference/Publication Travel:
Participants must
- have undergraduate student status through the end of the semester in which travel is taken. Students who just received their baccalaureate degree but conducted research while an undergraduate can apply and will be considered on a case-by-case basis.
- be registered at the conference and physically attend the conference.
- present their results in one of the following venues: a departmental colloquium, an Honors bag lunch, or similar presentation.
- submit a brief Report with a complete presentation citation to the Office of Undergraduate Research as soon as possible after returning from the conference or having the research published.

I. Programs -- Research Intensive Courses

Students may now participate in academic courses that are identified as Research Intensive (RI). Alternatively, students may enter into a RI Learning Contract (similar to the Honors Learning Contract) in which they enter into a contract with the instructor to turn a regular academic course into a research-intensive course. In general, these courses will be challenging and hopefully, rewarding. The criteria the course must meet are listed below. The course will appear on UT's transcript as Research Intensive.

<u>Designation Criteria</u>

In order for a course to be identified as "Research Intensive (RI)", <u>all</u> of the following four criteria must be satisfied:

1. Students must make serious attempts to advance (and/or make significant contributions to) the knowledge or understanding in the field of the investigation.

   For example, this could be the results of new observations, experiments, inventions, and/or theories in the (natural and human) sciences and engineering, or a new synthesis of recently-discovered knowledge through literature/library/ museum/business/education/ etc. studies. Implicit in this criterion is that the students must also have (or gain) knowledge of the current level of understanding in the field of investigation in order to advance (and/or make significant contributions to) it. Even though the instructor has complete freedom and responsibility for assigning students' grades, it is encouraged that the students' grades should not be penalized if the research did not go as originally planned if it was outside the control of the student(s).

2. Neither the students <u>nor the instructor</u> have *a priori* knowledge of the final result(s).

   This criterion is necessary to distinguish RI courses from the normal academic (classroom and laboratory) courses in which the instructor has knowledge of what the final outcomes should be if the course proceeds as planned or expected. **"Students"** are included in this criterion definition for completeness; however the main emphasis is on the instructor's *a priori* knowledge. It is acknowledged that in some RI courses, instructors may have preconceived notions of what they expect the final result to be but research is needed to either confirm or negate those notions.

3. The student investigators must present and/or disseminate their results to a wider audience than to just their class population.

   Students gain valuable experience when they provide professional, public presentations on topics they have acquired knowledge through research/critical discovery. The actual presentation type is determined by the instructor and/or the student(s) in the RI course and can be: an Oral or Poster presentation at an event or a Print submission to a publically/professionally disseminated publication. For instance if the Oral and/or Poster options are chosen, the students can meet this requirement in a multitude of different venues. In cases where the presentation/dissemination occurs after the semester ends (e.g., NCUR, Bag Lunches, etc.), the instructor has the prerogative of assigning final grades or progress/incomplete grades until Criterion 3 is met.

4. A summary Course Report from the instructor of each RI course must be submitted to the Office of Undergraduate Research at the end of the semester the course is offered. The Course Report must contain: i) the number of students in the course, ii) the Research Title(s), and iii) how Criterion 3 was met for each student. In addition to the Course Report, the students (upon consultation with

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the course instructor) in each RI course are highly encouraged to submit a written Final Report of their research project(s) to the Office of Undergraduate Research (OUR-UT).

OUR-UT will be the depository for all RI Course Reports and submitted student Final Research Reports and thus be a resource for both the students and instructors in deciding about participating in a **"Rese**arch-**Intensive" course. Selected Fin**al Reports (and/or their Abstracts) may be included in OUR-UT reporting functions such as the OUR-UT Annual Reports and/or displayed on the OUR-UT website (and/or its publications). Implicit in this criterion is that OUR-UT will coordinate with the appropriate UT offices for projects involving possible patent issues, publication issues, confidentiality issues, etc. prior to posting on OUR-**UT's website (**and/or its publications).

The written Final Report may be secondary to the primary outcome of the research project if appropriate for the research subject area (e.g., Art exhibitions, musical/theatrical/film performances, Readings, etc.). In these cases, the written Final Report could help explain the background/methodology/etc. of the project with the main project report residing in non-print media.

Notes:

Some special topic courses such as UGR2980: *Issues in Research and Scholarship* can also merit the RI designa**tion even though it doesn't technic**ally meet the four criteria because the content of the entire course lays the foundation for the safe and ethical conduct of research.

Research is taken to be an integral part of all disciplines, although its form may vary between disciplines. The above four criteria represent the minimal set of criteria identifying a course a**s "Rese**arch Intensive". The instructor/dep**artment/college may also impose higher standards and/or may impose additional criteria in addition to the above criteria for their **"Rese**arch Intensive" course design**ation.

> NOTE: All tuition and other fees associated with the research (independent study) course in which the student registered are the responsibility of the STUDENT. OUR-UT <u>does not</u> cover these expenses.

Explanation and Justification

Criteria 1 & 2 are related and define *research* as an integral component of *discovery*.

1. Students must make serious attempts to advance (and/or make significant contributions to) the knowledge or understanding in the field of the investigation.

2. Neither the students <u>nor the instructor</u> have *a priori* knowledge of the final result(s).

Criteria 3 & 4-voluntary defines *research* as gaining value when the results of the research endeavors are made *public*.

3. The student investigators must present and/or disseminate their results to a wider audience than to just their class population.

4. ...the students (upon consultation with the course instructor) in each RI course are highly encouraged to submit a written Final Report of their research project(s) to the Office of Undergraduate Research (OUR-UT).

I. Compensation Options

I. Compensation Options -- Academic Credit (AC)

If you choose this option, you will be receiving academic credit instead of financial compensation for your research efforts. To accomplish this, you should register for **"Research" or "Independent Study" or** a similarly named course in the department that you will be conducting research; consult your adviser or OUR-UT for assistance. NOTE: All tuition and other fees associated with the research (independent study) course in which you registered are your responsibility. OUR-UT does not cover these expenses. The Time Guideline tables in the Reference section show the recommended research time commitment in determining how many credit hours to register for. These tables are for guidance -- the actual time commitment should be mutually agreed to between you and your research mentor *prior* to commencing your research project. However, substantial deviations from the total cumulative research hours listed in the tables require OUR-UT approval.

If you choose the Academic Credit option, plan on spending 2.5 hours per week per academic credit hour on research. You may certainly exceed these hours! Should you fall below the number of hours spent on research in regards to the number of credit hours you registered for, an incomplete or progress grade will be issued until you make up the appropriate number of hours.

Time tracking is required. You should have your faculty mentor sign the timecards and then forward copies to OUR-UT. Timecards should be submitted biweekly on the appropriate Friday (or the last day of the work week if that Friday is on a university holiday).

> NOTE: All tuition and other fees associated with the research (independent study) course in which the student registered are the responsibility of the STUDENT. OUR-UT does not cover these expenses.

I. Compensation Options -- Faculty Grant Support (FG)

This category is for students that will be working with a faculty member and paid directly through that faculty member's grants and/or from external sources. The time commitment schedule is strictly by mutual agreement between you and your faculty mentor. The compensation rate is also governed by mutual agreement between you and your faculty mentor.

For students receiving compensation from the faculty member: you may not receive compensation and academic credit simultaneously for the same effort ("double-dipping"). However if you are paid for "X" number of hours, you can register for "Y" credit hours *IF* you plan to devote "X" plus additional research hours as listed in the Time Guidelines tables to your research project. As an example: you will be paid for 100 hours for the Spring semester and you can devote a total of 250 hours to research; therefore you may not register for more than 4 credit hours of research for that semester. Of course, you may volunteer the extra time to complete your research project instead of choosing academic credit. If you elect to receive both financial and academic credit, you may work on the same research project provided you satisfy the total number of research hours.

If you let OUR-UT office know that you will be participating in this option, you may apply for limited research assistance for supplies, travel, publications, etc.

This compensation option has a taxable income status, which is unlike the stipends category. *Check with your tax adviser for your own particular situation*.

<u>Time tracking is required.</u> You should have your faculty mentor sign the timecards and then process them directly through your faculty mentor's department. Please forward copies to OUR-UT so we can document your research involvement. Timecards should be submitted to OUR-UT biweekly on the appropriate Friday (or the last day of the work week if that Friday falls on a university holiday).

I. Compensation Options -- Stipends/Fellowships (ST)

At present, stipends are available for the FYSRE (summer), USRCAP (summer), TolInterns (summer), and STARS (academic year). The stipends for the summer programs are currently planned to be paid in four checks: three roughly equal checks -- first one in early June, second one in early July, and the third one in early August and the final (fourth) check is typically $150 to be paid when the Final Report is turned in to OUR-UT. As always, specific timings and amounts may vary from year to year.

For students receiving compensation: you may not receive compensation and academic credit simultaneously for the same effort ("double-dipping"). However if you are paid for "X" number of hours, you can register for "Y" credit hours *IF* you plan to devote "X" plus the additional research hours listed in the Time Guidelines tables to your research project. Of course, you may volunteer the extra time to complete your research project instead of choosing academic credit. Also, you may register for UGR2980: *"Issues in Research and Scholarship"* for one credit hour if you are participating in FYSRE or USRCAP (summer) since you are required to attend the UGR2980 seminar presentations, anyway.

FYSRE, USRCAP, and TolInterns summer programs are very time intensive, requiring 25 to 30 hours MINIMUM per week. Registering for summer classes that are unrelated to your research project are <u>*highly discouraged*</u> because of the time commitments and possible time conflicts. If you still wish to register for classes, you need to obtain approval from your faculty mentor and OUR-UT *BEFORE* you register for classes. Since you will be paid a stipend to conduct research, your research project must receive top priority!!

It is our understanding that the stipends are paid from an account that has a tax status that is not reportable to federal, state, or local governments as income. As such, a portion of your stipend will NOT be withheld for income taxes. However, tax laws are continually changing and are more complicated than quantum physics!! You will be responsible for any taxes that you may owe as a result of participating in these programs, even though funds were not withheld from your stipend!!

<u>Check with your tax adviser for your own particular situation</u>.

<u>Time tracking is required.</u> You should have your faculty mentor (and/or supervisor) sign the timecards and then forward the originals to OUR-UT. Timecards should be submitted to OUR-UT biweekly on the appropriate Friday (or the last day of the work week if that Friday falls on a university holiday).

I. Compensation Options -- Volunteer (VL)

Volunteer time for research is always a possibility and is open to everyone. This is an attractive alternative for individuals requiring a flexible time commitment for research during a semester. The time commitment schedule is strictly by mutual agreement between you and your faculty mentor.

If you let OUR-UT office know that you will be participating in this option, you may apply for limited research assistance for supplies, travel, publications, etc.

<u>Timecards are optional (but recommended).</u> You should have your faculty mentor sign the timecards and then forward copies to OUR-UT. Timecards will help us to document research

time involvement and possibly work to advocate on your behalf for additional research funding. Timecards should be submitted to OUR-UT biweekly on the appropriate Friday (or the last day of the work week if that Friday falls on a university holiday).

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I. Compensation Options -- Work-Study Research (WS)

The University of Toledo is pleased to offer the possibility for Work-Study students to choose a research project for their work-study funds rather than regular work tasks. This form of compensation is available to students participating in the Work-Study Research Program, which was detailed in section: "II. Programs: Work-Study Research Program: WSRP".

The WSRP is an attractive option for individuals on the Work-Study program who may require a flexible time commitment for research during a semester. The time commitment/schedule is strictly by mutual agreement between you and your faculty mentor. The compensation rate and possible project restrictions are governed by the Federal Work-Study guidelines. Please check with the Work-Study office and/or OUR-UT office for specific programs in this category.

Generally, you may not receive Work-Study compensation and academic credit simultaneously for the same effort ("double-dipping"). However if you are approved for "X" number of Work-Study hours, you can register for "Y" credit hours *IF* you plan to devote "X" plus additional research hours as listed in the Time Guidelines tables to your research project. As an example: you are approved for 100 Work-Study hours for the Spring semester and you can devote a total of 250 hours to research; therefore you may not register for more than 4 credit hours of research for that semester. Of course, you may volunteer the extra time to complete your research project instead of choosing academic credit.

Some internship programs (e.g., student teaching) may allow you to receive both Work-Study compensation and academic credit simultaneously. Please check with the Work-Study office and/or OUR-UT office for specific programs in this category.

If you let OUR-UT office know that you will be participating in this option, we can try to assist your research efforts by possibly providing (depending on budgets, of course!!) some assistance for supplies, travel, publications, etc.

The forms you will need filled out include:
- Work Study Contract (Faculty mentor and OUR-UT must sign it)
- SEPA (UT Student Employment Personnel Action form)
- W-4 (both Federal and State forms)
- Request for Exemption
- PIF (UT Personnel Information Form)
- DMA (Ohio Declaration regarding Material Assistance/non-assistance to a terrorist organization)
- Terrorist List
- I-9 Employment Eligibility Verification

These forms are available at: http://www.utoledo.edu/offices/controller/payroll/forms.html.
For students who are already enrolled in the Work-Study program, many of these forms are already on record and need not be duplicated again.

Time tracking is required. You should have your faculty mentor sign the timecards and then *take them directly to the Payroll office and/or your faculty mentor's department*. Please forward copies to OUR-UT so we can document your research involvement. Timecard submission follows standard Work-Study guidelines.

II. Research Proposal Guidelines

II. Standard Proposal Writing Techniques and Guidelines

The way a proposal is crafted can make the difference between receiving funding and being turned down for funding. Here are some tips for you to write a good proposal and avoid some of the pitfalls that are contained in poorly-written proposals. Remember that research by its very nature seeks to go beyond the individual and be universal. The clearer you can express the following three points, the better chances your project will be ranked high and receive funding:

- the Intellectual Merit of the project; (*Why should I do it?)*
- the Broader Community Impact. (*Why should anyone care?*)
- the Impact on Your Academic Program. (*How will this help me grow in the field?*)

Listed below are some tips for you to write a good proposal and avoid some of the pitfalls that are contained in poorly written proposals.

- *You are the primary author of the proposal*. *You* (NOT your faculty mentor) are your proposal's primary author. However, your faculty mentor should guide you in the preparation of your proposal and edit the final version. Your proposal should be as professional as you can make it at the level that you understand the research material. *A proposal that gives the impression that it ha**s been "cut**-and-pa**sted" from your f**aculty mentor's rese*arch papers generally is rated lower than one that gives the impression that you wrote it.*

- *Explain the relationship* Your project is, in most cases, a team effort between you and your faculty mentor. Explain the relationship of your project to your fa**culty mentor's** research program. If your research project is completely distinct from your fa**culty mentor's** research, it is very important to explain the role your faculty mentor will play on your project.

- *Present your project carefully*. All research projects require a background to build upon, even if you are proposing a creative work. STEMM (Science, Technology, Engineering, Mathematics, and Medicine), education, business, projects need to have the significance of any specialized standards, procedures, and equipment explained and your project set in context with the state of the art in the research field. For humanities and creative/performing art projects: describe your methodology carefully and how you will be using your background research to create an artistic or literary work. It is understood that your inspiration may happen at unanticipated times, but how you describe your approach may be the difference between being funded or not. Remember that your proposal will be reviewed by people in many different disciplines.

- *Observe the posted proposal guidelines!!!* If the guidelines say 5-10 pa**ges, don't turn** in proposals that are less than -- or more than -- that length. Make sure to turn in *ALL* required parts of the proposal. Incomplete proposals missing parts will not be reviewed in most cases. The Proposal template downloadable from OUR-UT already has the correct formatting and ordering of the major proposal parts.

- ***Don't*** *adjust the main text font size and/or margins* beyond what is readable (typically, 10-12 point font) and/or margins beyond standard and/or posted lengths (typica**lly, 3/4" - 1") to meet the p**age limit size. Also be mindful of graphs and their readability.

- *Meet the deadlines!!!!!* If your proposal arrives late to OUR-UT office, it may or may not be accepted. Deadlines are called DEADlines for a reason!! Internet malfunction is not an acceptable excuse for a late proposal.

- *Spelling, spelling, spelling….. (& grammar)* Remember that your proposal conveys to the reviewer your professionalism and presentation. An excellent project can be judged low if the presentation is poor. Use your word processor's spell check and grammar check, but don't depend on them alone. For example, "two", "to", and "too" are all perfectly spelled American-English words that have completely different meanings. Other examples include: there/their; affect/effect; etc. Use your word processor's spell check and grammar check, but don't depend on them alone. If a word has a squiggly red line under it, be sure to CHECK it *AGAIN* carefully!! Writing experts maintain that a good method of proof-reading is to read your document *backwards*! This way you are more likely to see what is actually written instead of what you thought you wrote. A friend and/or The Writing Center here on campus can also make good proof-readers.

- *Define all technical terms.* The reviewers are highly educated individuals, conducting research in many diverse areas. As such, they may not be in your field of research and may not know *a priori* the importance of an x-ray diffractometer, *Caenorhabditis elegans* any specialized standards, procedures, and/or equipment to your research. This also applies to creative projects where the importance of George Gershwin, a pentameter, Neo-Platonism, Ansel Adams, etc. to your project should be explained.

- *Qualitative versus quantitative.* Research by its very nature seeks to go beyond the individual and be universal. If, for instance, you want to study how Scandinavian women are portrayed in seventh century art, you need to define any subjective measures that you will use in how you categorize (positively, neutral, or negatively) the objects. These subjective measures should be consistent with commonly accepted standards. Provide references and/or definitions for the metrics you use.

- *COMPLIANCE Issues!!!* Internal Review Board (IRB) approvals are needed for studies that involve human subjects (including surveys), or IACUC approvals for experimental animals. Other offices control chemicals, biological agents, radiation, etc. You and/or your faculty mentor must seek approval if your research involves any of these elements. Approval must be granted **before** you start your research. *No* exceptions may be made for approval after the fact. Approvals are processed through the UT Office of Research Administration (UH2300) NOT Undergraduate Research.

- *NOW IS THE TIME TO START WRITING!!!* Writing and editing by both you and your faculty mentor takes time -- in most cases, more time than you originally estimate. A well-written proposal takes many writing/editing cycles. Take your first time estimate and multiply it by π (3.1415926…) to get a better estimate of start-to-finish time duration for crafting a proposal. Thus if you think you can write your proposal in one week, chances are that it will be three weeks later when you are finally ready to turn in your proposal.

- *Budget!!* If the program has a fixed budget, filling out the budget page is easy – Stipends and Supplies!! However, if the budget is flexible, you need to spend some time and thought in what to request funding for and how much. Remember that the programs administered through the OUR-UT office are primarily funded by tax dollars and have certain restrictions that limit what can be funded. Round UP the final budget request to the nearest $25 amount to allow for unexpected expenses and/or price increases.

- *Proposal Workshop* OUR-UT will be presenting proposal writing workshops in late January for all students interested in conducting research. In those workshops, we will be discussing: how to become involved in research; identifying a research mentor; crafting well-written proposals; research programs' guidelines/requirements; and answering additional questions.

- *Previous Proposals* for funded research projects in the FYSRE and USRCAP programs are available from the Office of Undergraduate Research. These proposals will be a good resource for you as you compose your proposal.

II. Detailed Parts of a Complete Standard OUR-UT Proposal

As an aid in your proposal development, we have made available the Standard Proposal Template (in MS Word format) downloadable from OUR-UT website. Alternately, contact us and we will be happy to email you the file. It contains all of the correct formatting and ordering of the various proposal sections. The list below contains all of the parts (in the preferred order) of the proposal.

Standard OUR-UT Proposal

- Cover Pages ⟶ 2 pages
- Abstract ⟶ usually ½ page
- Introduction
- Main Body ⎬ limited to 5 to 10 pages
- References ⟶ usually 1 to 1½ pages
- Timeline ⟶ usually ½ to 1 page
- Budget & Justification ⟶ usually 1 page each
- Academic Statement ⟶ usually 1 to 2 pages

Additional Part of a Proposal:
- Letter of Support ⟶ usually 1 to 1½ pages

Parts of a Proposal: Cover Pages
Use the Cover Page template downloadable from the Undergraduate Research website. It is in MS Word format and is editable. A proposal that does not have the standard Cover Pages will not be processed until we receive the appropriate Cover Pages filled out. The Cover Pages are reproduced later in the Reference Section, but it is preferred for you to download the actual editable document.

Parts of a Proposal: The Abstract
The first impression (abstract or first page) is extremely important! Many reviewers will form an impression (either positive or negative) within this part of the proposal. It should be *concise*!! -- 1 or two paragraphs *AND* at most half a page. The abstract should: i) set the goals of the project (outline the Intellectual Merit of the project) and ii) how this project is anticipated to advance current understanding (how this project may benefit the Broader Community).

Parts of a Proposal: The Introduction
The Introduction is also part of the first impression of the proposal. It should be *concise*!! -- 1 or two paragraphs *AND*at most one page. The Introduction should: i) provide background of the project; ii) set the goals of the project; iii) briefly how the project will be undertaken, and; iv) how the project fits in/advances current understanding.

Parts of a Proposal: The Main Body
The main body is where you present the details of your project. This is the "meat and potatoes" of your proposal. Explain the methodology and all specific terms such that a reader not in that area could understand your project. Any graphs and/or figures are included here. It should be thorough, but stay within the page limits (Introduction through Summary/Conclusion), which is a maximum of 10 pages for OUR-UT Standard Proposals.

Parts of a Proposal: The References
You are building upon or advancing the field by doing research or creation of art/literature. As such, you need to credit the work of others that have an impact on your work. Cite the relevant works and/or cite review articles in the field. The reference section is not counted in the proposal page limit for OUR-UT programs but should be between half page to two pages in length. The citation style is whatever style that is typically followed for your research profession. *Proper citations are a necessary component to ETHICAL conduct of research.*

Parts of a Proposal: The Timeline
The Timeline is valuable for you to describe and set milestones through the research period. It also allows the reviewers to judge if the proposed project can be doable in the time allotted. Usually, weekly or biweekly goals are sufficient.

Parts of a Proposal: The Budget
Fill out the Budget and Budget Justification pages according to the guidelines of the program you to which are applying. Some programs contain stipends, some do not. For supplies, research travel, and/or misc. expenses, list enough information that the reviewers can make a determination if your requested budget is justified. Round UP to the nearest $25 in the Budget sheet. Remember that the programs administered through the OUR-UT office are funded by tax dollars and have certain restrictions that limit what can be funded. Use the template for the Budget page. The Budget Justification should be at most one page.

Parts of a Proposal: The Academic Statement
The Academic Statement is the section where you describe how this research project fits in with your academic and professional goals. You should carefully write this section because the reviewers pay close attention to it. A word of caution: Do NOT just state that this project will help you "get into graduate and/or medical school". It is expected that your research experience will help you in that regard, but we are looking for the larger picture.

Parts of a Proposal: Faculty Mentor Support Letter
The Faculty Mentor Support Letter is the only section of the proposal of which you are not responsible for writing. It is sent by your faculty mentor separately from your proposal directly to OUR-UT. Specifics about the faculty support letter are contained in the Proposal Scoring Rubric reproduced in this Handbook and downloadable from OUR-UT website. The faculty support letter is an important component of your proposal, so gently remind her/him about what the review committee is looking for in the support letter.

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II. Proposal Scoring Rubric

The following Proposal Scoring Rubric contains instructions to the reviewers on how to score the proposals for research during the summer. Please note that the word "*research*" in the scoring rubric below is meant to also include "*creative activity*". Likewise, the term "*refereed*" also includes "*juried*" or "*critically-reviewed*". All proposals are to be rated on a scale of 1-5 with 5 being outstanding in the following four categories: i) Intellectual merit, ii) Project Description, iii) Value to student, and iv) Faculty support letter. The following criteria are guides for the numerical scores.

Intellectual merit (including completion within the proposed time frame)*
 5 Has potential to make a substantial contribution to the field (e.g., a refereed publication or presentation/poster at a professional conference/event).
 4 Has potential to make a contribution to the field, but possibly not publication/ presentation quality without additional work.
 3 Has potential to make a limited contribution to the field.
 2 Has little potential to make a tangible contribution to the field or contains errors.

1 Has very little/no potential to make any contribution to the field or contains serious errors.

* Project should be completed (or substantial progress made) in the proposed time frame (ten weeks during the summer or summer plus Fall semester) of the program in which the student is applying. The overall Timeline section of the proposal is important.

Note: Proposals that give the impression that they were written by their faculty mentor or heavily copied from existing theses or publications, without much effort by the submitter, should be rated <u>LOW</u>.

Articulation/Description of the project

5 Project is easily understood to persons both within and outside of the field of research.

4 Project is understood to persons both within and outside of the field of research with some effort.

3 Project is written for persons within the field of research but difficult for persons outside the field of research to comprehend.

2 Project is difficult to understand for persons both inside and outside the field of research.

1 Project is nebulous and/or difficult to understand for persons both inside and outside the field of research. Outcomes are not described, or offers little evidence that substantial progress can be accomplished in the time proposed.

Va**lue of the project to student's** academic and professional development**

5 **Project fits nicely in the student's c**areer aspirations and will greatly help their academic program.

4 **Project fits in the student's c**areer aspirations and will help their academic program.

3 Project is of some va**lue to the student's** academic program.

2 Project is of marginal va**lue to the student's** academic program.

1 **The student's** Academic Statement is missing or the academic value of the project is not well-described.

** The Value to Student is *more than just* students wanting to avail themselves of this **opportunity simply to 'be** accepted in medical/gradua**te school'. Cert**ainly this could be part of the value -- just not the *only* reason.

Faculty support letter***

5 Faculty support letter describes the highest level of confidence in the student and her/his ability to perform the project in the proposed time frame.

4 Faculty support letter describes confidence in the student and her/his ability to perform the project.

3 Faculty support letter is neutral a**bout the student's** ability to perform the project.

2 Faculty support letter is slightly negative a**bout the student's** ability to perform the project.

1 Faculty support letter expresses grave concerns a**bout the student's** ability to perform the project.

*** The faculty letter should describe how <u>this project</u> could advance general understanding in the field of research in addition to the fa**culty mentor's** assessment of <u>this student</u>'s abilities in regards to the proposed project. The reviewers should NOT give a numerical score if the Faculty support letter is missing. We will contact the faculty to obtain their statement about this particular research project.

II. Detailed Parts of a Modified OUR-UT Proposal - TTKTG

The City of Toledo Internship program, *Toledo Talent Keeps Toledo Great* (TTKTG) is ideal for students pursuing careers in public service w/majors in political science, sociology, communication, social work, geography & planning, law & social thought, criminal justice, or business. A modified proposal (Application) procedure is needed. Visit the TTKTG website (http://www.utoledo.edu/success/celcs/toledo-talent-keeps-toledo-great/) to review the posted internship positions. The Application will also be uploaded through this website.

OUR-UT Proposal - TTKTG

- Cover Pages ⟶ web form on TTKTG website

Application parts uploaded through TTKTG website:
- Resume
- UT Transcript
- Budget & Justification ⟶ only if needed
- Academic Statement ⟶ usually 1½ to 2 pages
- Two Letters of Recommendation

Parts of a Proposal: Cover Pages
The Cover Pages for the TTKTG program are filled out online at the TTKTG website.

Parts of a Proposal: The Resume
Include your resume since you will be applying for the internship and you will be evaluated by the city supervisors. Your resume should be at most two pages.

Parts of a Proposal: The UT Transcript
Include your UT (or other institution(s) transcript(s). The city supervisors will be reviewing your complete proposal (application), so they will be interested in learning what courses **you've t**aken and your record in those classes.

Parts of a Proposal: The Budget (ONLY if needed)
Fill out the Budget and Budget Justification pages only if needed according to the OUR-UT program guidelines. The summer TTKTG program contains only a stipend, but if requesting additional funds for supplies, research travel, and/or other misc. expenses, list enough information so that the reviewers can make a determination if your requested budget is justified. Round UP to the nearest $25 in the Budget sheet. Remember that the programs administered through the OUR-UT office are funded by tax dollars and have certain restrictions that limit what can be funded. Use the template for the Budget page. The Budget Justification should be at most one page.

Parts of a Proposal: The Academic Statement
Your Academic Statement is important for optimal placement. The Academic Statement is the section where you describe how this internship fits in with your academic and professional goals. You should carefully write this section because the reviewers pay close attention to it. A word of caution: Do NOT just state tha**t this project will help you "get into gr**aduate/medical school or a job a**t the city". It is expected th**at your internship experience will help you in that regard, but we are looking for the larger picture. Describe your background and skills tha**t would help you in your internship in the city office you've selected. The city supervisors**

will form an impression (either positive or negative) within this part of the proposal. It should be at least 1-1/2 to two pages.

Parts of a Proposal: Support Letters
You need to have two letters of recommendation ready to upload on the TTKTG website. It is recommended that you ask individuals that are familiar with you, your background, and your work ethic to write letters on your behalf. These may come from UT faculty/staff or individuals outside of UT. These letters of recommendation are important components of your proposal (application).

Parts of a Proposal: Additional Conditions

- The city (or other municipality) will likely require an interview and/or background check prior to being accepted into the internship position.
- After 3 weeks, submit a project description to OUR-UT in the standard proposal format.

II. Detailed Parts of a Modified OUR-UT Proposal - Travel

OUR-UT supports undergraduate research travel in two ways: presenting research at a conference and travel to conduct research. **The term "conference" is me**ant to include all types of professional gatherings (e.g., conferences, exhibitions, shows, performances, publications, etc.) and can be local, regional, national, and/or international. The guidelines given below are for conference travel. Please note that your research did NOT have to be funded by OUR-UT to be eligible for travel funding from OUR-UT. For research travel, fill out the Travel Cover Pages and then follow the AYRP proposal format for the remainder of the proposal.

OUR-UT Proposal - Conference Travel

- Travel Cover Pages ⟶ 2 pages
- Conference Details ⟶ usually 1 page
- Abstract ⟶ usually 1 page
- Budget & Justification ⟶ 1 page each
- Academic Statement ⟶ usually 1 to 2 pages

Additional Part of a Proposal:

- letter of support from the faculty research mentor

Parts of a Proposal: Cover Pages
Use the Travel Cover Page template downloadable from the Undergraduate Research website. It is in MS Word format and is editable. A proposal that does not have the Travel Cover Pages will not be processed until we receive the appropriate Cover Pages filled out. The Travel Cover Pages are reproduced later in the Reference Section, but it is preferred for you to download the actual editable document.

Parts of a Proposal: Conference Details
Provide details about the conference (e.g., conference title, location, dates, and website). Include your role in the conference and details about your presentation.

Parts of a Proposal: The Abstract
The Abstract should be as submitted or published in the Conference booklet/proceedings.

Parts of a Proposal: The Budget

Fill out the Budget and Budget Justification pages. List enough information so that the reviewers can make a determination if your requested budget is justified. Round UP to the nearest $25 in the Budget sheet. Remember that the programs administered through the OUR-UT office are funded by tax dollars and have certain restrictions that limit what can be funded. Use the template for the Budget page. The Budget Justification should be at most one page.

Parts of a Proposal: The Academic Statement
Your Academic Statement is the section where you describe how participating in this conference will help you advance with your academic and professional goals.

Parts of a Proposal: Faculty Support Letter
The Faculty Mentor Support Letter is the only section of the proposal of which you are not responsible for writing. It is sent by your faculty mentor separately from your proposal directly to OUR-UT. Your faculty research mentor should provide additional details about the conference and its standing in the field and how your participation will help you advance in the profession.

III. Research Project Completion

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III. Research Project Completion -- Wrapping Up Your Research

Research projects, including artistic works, are not complete until they have been presented to the public. The following guidelines are to be used in the preparation of the Final Reports for the various programs listed in this booklet, as well as tips on how to make good presentations of your project at conferences, symposia, etc. Many of the student researchers have made sufficient progress on their projects and have been encouraged by their faculty mentors to publish their research in professional journals and/or make conference presentations. OUR-UT is very happy to encourage this and has set aside funds to facilitate publication. In addition, OUR-UT has initiated a peer-reviewed journal, the *"UT Journal of Undergraduate Research"* (UT-JUR).   Please consider this journal when publishing your research. The details are available on the OUR-UT website and summarized in this section of the Handbook.

If you are in the Honors College, it is possible that your research project will become the nucleus of your Honors Thesis. Adherence to the following guidelines now will save you extra time later when the time comes to write your Honors Thesis! The Honors Theses Guidelines are available through the Honors College and posted on the web at:

http://www.utoledo.edu/honors/pdfs/THESIS_AND_PROJECT_GUIDELINES%28.pdf

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III. Research Project Completion -- Final Report Guidelines

To ensure uniformity amongst the various projects, the Final Report should adhere to the guidelines listed below and the writing style should conform to accepted standards of grammar and usage. Students should follow the accepted style in their discipline for documentation of sources, bibliography, references, etc. One of the following manuals: The MLA Style Manual, Publication Manual of the American Psychological Association (APA), or The Chicago Manual of Style should be used, or alternatively, one recommended by your discipline.   Most professional journals have style requirements for submitted manuscripts. If you are following a journal recommended style (which is also acceptable), please note this in the References section of your report.

Although there isn't a firm length limit, the Final Report should describe your research project and its outcomes in sufficient detail so the readers will be able to understand your research. As a guide, most Final Reports are in the 10-20 page range. If your report is less than 5 pages, you will be asked to provide more detail and if your report is significantly over 40 pages, you may wish to provide less detail. The exception to this guide is if your Final Report will also serve as your Undergraduate Thesis.   In this case, the length will be determined by the thesis length requirement.

<u>Word Processing Languages</u>

Acceptable word processing languages to use in preparing your Final Report include: LaTeX, MSWord, OpenOffice, etc. Please convert your Final Report into the PDF format before submitting it to OUR-UT.   However, keep a copy of your Final Report in one of the original word processing languages in case the OUR-UT office has to make editorial adjustments to your report. Typewriter and hand-written prepared reports are discouraged. This includes figures and illustrations unless, of course, they are artistic works.

<u>Fonts</u>

Acceptable fonts are ones easily readable (e.g., Arial, Times New Roman, Verdana, etc.) with a font size of 10 - 12 point. The Final Report title should be two points larger than the

text size font (e.g., 12 point for 10 point text font, 13 point for 11 point text font, and 14 point for 12 point text font size).

<u>Text Justification and Page Layout</u>
    The title, author (aka, YOU!), department, faculty mentor, program, and date should be CENTER justified. The section headings should be LEFT justified and the text body should be FULL justified (preferred) or LEFT justified. The pages should be in the common, single column, page layout. The title should be in BOLD face font and the section headings (including Abstract heading) should be in BOLD face font OR <u>underlined</u> and consecutively numbered.

<u>Number of Copies</u>
    You need to submit one electronic copy and one paper signature copy to the OUR-UT office. It is advised for you make at least three additional paper copies: one for yourself, one for your faculty adviser, and one for your department's office.

<u>Margins and Numeration</u>
    All pages should ha**ve 1" top, left, right,** and bottom margins except for the Abstract on the first page, which should have a **1.5" left** and right margins. See the sample pages below for examples.
    The manuscript must be complete. All pages must be present and numbered in the proper sequence. The pages of the body of the manuscript including plates, blueprints, appendices, and bibliography/references must be numbered consecutively with Arabic numbers placed in the middle or flush with the right margin of the page and placed at the bottom margin of the page. The section headings should be consecutively numbered with Roman numerals.

<u>Style and Form</u>
    The MLA Style Manual, The Publication Manual of the American Psychological Association (APA), and/or The Chicago Manual of Style are commonly recommended and are available at the bookstore. Your adviser will be able to direct you to the appropriate style manual for your discipline. A consistent style should be used throughout the manuscript. Generally, the main text should be single-spaced; quotations of sufficient length should have an extra paragraph indent of 0.5" from the left and right margins.

<u>Illustrations, Photographs and Maps</u>
    Photographs and other illustrative materials should be inserted in the text at the appropriate location (when first discussed in the text) and appropriately sized. Hint: when composing/editing your Final Report, you should save all figures in separate files in the "jpg" and/or "PDF" formats, since graphics will dramatically increase file size and make editing cumbersome. Color illustrations/figures are satisfactory, but double-check to see if those colors reproduce satisfactory. For instance, yellows commonly are very faint when displayed on the screen and/or printed on black/white printers. If at all possible, do not rely on color as a key or code, etc. since most paper copiers are black/white only. ALL figures and/or illustrations MUST have figure captions attached to the figure.

<u>Organization of Manuscript</u>
    The manuscript should be organized as follows. Vertically center the following information on the cover page.

<div align="center">
title
author/department/mentor/program/research period
2 blank lines
</div>

Indent the Abstra**ct 1/2" from both the left** and right margins. Add two blank lines after the Abstract, then start of the main body of text (with figures embedded) and with acknowledgements, bibliography or references, and appendices (if included) using standard page margins.

Sample first (cover) page:

Sample Final Report Guidelines: Title
Author (aka, YOU!)
Department
Faculty mentor
Program (FYSRE, Research Abroad, etc.)
Research Period (e.g., Summer 2018)

Abstract
Acceptable fonts are ones easily readable (e.g., Arial, Times New Roman, Verdana, etc.) with a font size of 10 - 12 point. Final report title should be two points larger than the text size font (e.g., 12 point for 10 point text font, 13 point for 11 point text font, and 14 point for 12 point text font size).

I. Introduction
The title, author (aka, YOU!), department, faculty mentor, program, and date should be CENTER justified. The section headings should be LEFT justified and the text body should be FULL justified (preferred) or LEFT justified. The pages should be in the common, single column, page layout. The title should be in BOLD face font and the section headings (including Abstract heading) should be in BOLD face font OR underlined and consecutively numbered.

II. Number of Copies
You need to submit one copy to the OUR-UT office (electronic) and it is advised for you make three paper copies: one for yourself, one for your faculty adviser, and one for your department's office.

III. Etc.
All pages should ha**ve 1" top, left, right,** and bottom margins except for the Abstract on the first page, which should have a **1.5" left** and right margins. See sample pages as examples…

Signature Page
    The Signature Page can be attached to the Final Report or submitted separately. It should be organized as shown in the example below. The signature lines should be near the bottom of the page.

Signature Page Guidelines: Title
Author (aka, YOU!)
Department
Faculty mentor
Program (FYSRE, Research Abroad, etc.)
Research Period (e.g., Summer 2018)

Abstract
Acceptable fonts are ones easily readable (e.g., Arial, Times New Roman, Verdana, etc.) with a font size of 10 - 12 point. Final report title should be two points larger than the text size font (e.g., 12 point for 10 point text font, 13 point for 11 point text font, and 14 point for 12 point text font size).

Signatures

_____   _____
Student Researcher   Faculty Mentor

_____
Date

III. UT Journal of Undergraduate Research (UT-JUR)

The UT-JUR is dedicated to publishing scholarly work conducted by undergraduate students at The University of Toledo on a regular basis. The topics encompass all fields of endeavor present at UT. The governing publisher will be the University of Toledo Press. Undergraduate students should be first author, but the articles can have multiple authors at all levels (undergraduate, graduate, postdoc, faculty, etc.).

Eligibility
- All UT undergraduates conducting research, creative activities, and/or other scholarly work (whether funded or not) are eligible to submit their work for publication.
- Non-UT undergraduate students conducting research, creative activities, and/or other scholarly work are eligible to submit their work for publication if their research was conducted at UT or mentored by a UT faculty member.

Structure
- Editor: Director, Office of Undergraduate Research
- Editorial Board
  o Editor
  o Students interested in Publishing (number TBD)
  o Associate Director, Office of Undergraduate Research
  o Chair, Advisory Committee on Undergraduate Research
  o member from The University of Toledo Press.
  o Publishing Assistant -- Graduate Assistant in the Office of Undergraduate Research
- Frequency -- Annual in Spring Semester
- Professionally-peer reviewed articles
- Content
  o Undergraduate Research news and events
  o The number of selected research articles per publication is variable
- Format
  o Electronic
  o Open access
  o Limited number of paper copies for archives, development/promotion, etc.

UT-JUR Author & Coauthor Responsibilities

Publishing in a professionally-refereed journal such as the *UT-Journal of Undergraduate Research* (*UT-JUR*) is a privilege and carries significant responsibility. By submitting manuscripts for consideration, the authors (first author and coauthors) and the faculty mentor endorsing this research affirm that this work conforms to the highest ethical standards of the Responsible Conduct of Research (RCR) code. The relevant points for publication are summarized below.

1. The research presented in the manuscript is original and/or builds or expands on previous research. The research must have been conducted by the author while the author was: i) a UT undergraduate student (on- or off-campus); ii) a non-UT undergraduate student conducting research at UT; or iii) a non-UT student mentored by a UT faculty member (off-campus).

2. If there are coauthors on the paper, each one should have made meaningful contributions to the work and should have had the opportunity to write/review/edit the manuscript. By the same token, all persons who made significant contributions to the work should be included as coauthors. Consistent with Point 1 above, the first author must have had undergraduate status when the research was conducted.

3. Each manuscript must have the endorsement of a faculty member (either UT or non-UT). The faculty member endorsing the manuscript must have full knowledge of all parts of the research even though they may or may not be identified as a coauthor.

4. This manuscript does not contain copied sections of previous publications without providing due citation of those publications. Likewise, all significant previous works are properly cited.

5. This manuscript is not being simultaneously submitted for publication in other journals.

6. If the research contains data, the data/results are honestly reported and not selectively reported or not reported depending on the point(s) the author(s) are making in the paper. Fabrication of data/results and/or theft of data/results are a violation of the RCR code, and therefore are _strictly forbidden_ and may result in criminal and/or civil legal action.

7. All pertinent information (data, results, methodology, procedure, notes, etc.) of the research will be properly maintained and archived for a reasonable length of time.

8. The author(s) should alert the editorial board if the research contains patentable and/or proprietary material so appropriate courses of action are taken prior to publication.

9. If the _UT-Journal of Undergraduate Research_ agrees to publish the manuscript, the author(s) will grant UT-JUR publication rights as indicated in the Copyright Agreement.

UT-JUR Instructions for students/authors:

Access: http://www.utdl.edu/ojs/index.php/utjur/index

1. At **the top of the screen click "register"** and fill out the form below with all the relevant information. During the registration process, you will be a**sked to choose your "role." Be sure to choose** "AUTHOR"

2. Once you are registered, you will receive a confirmation email with your login credentials. Store that information in a safe place

3. Once you arrive a**t the home screen, click on "new submission"** and be sure that your resea**rch meets the requirements listed on the "submissions checklist." Check of** all boxes if the requirements are met.

4. **Click "s**ave a**nd continue"** and you will be taken to the next screen where you will be asked to upload your data file.

5. You will be a**sked to click "s**ave a**nd continue"** again. The next screen will ask you to provide the submission**'s met**adata. Fill out the appropriate information in the boxes.

6. If there are supplementary files, you will be asked to upload them on the next screen.

7. Finally, you will arrive at the 5th and final step of the process and you will be asked to **click "finish submission."**

8. You will receive a confirmation email confirming that your research has been submitted and you will be provided with a link that will allow you to track the progress of your submission.

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III. Research Project Completion -- Oral Presentation Guidelines

The following is a list of good practices for oral presentations. Most presentations these days are given using PowerPoint formatting, so the tips listed below are optimized for that format. Fewer and fewer people choose overhead projector presentations and 35mm slides have gone the way of 8-track tapes and other dinosaurs!! Even so, the tips listed below can be applied to these other formats as well.

1. Ensure that your version of PowerPoint is compatible with the version installed on the computer that will be controlling the LCD projector. This is important if you are using the latest version of the software and/or using a Mac version or the Corel Presentations software.

2. Transfer your talk to the presentation computer in plenty of time before the *first* scheduled talk of your session. This is important because slide layouts, special fonts, and colors may have to be adjusted for your talk. Installation and "boot-up" time *IS* counted in your allotted presentation time after your session starts!

3. Make sure your talk is on a medium that can be read by the presentation computer. I've been at conferences where the speaker had his talk on a 3-1/2" floppy disk but the presentation computer only had USB ports and a CD drive but didn't have a 3-1/2" drive!! If at all possible, do not rely on an internet connection for your talk. More times than not, it will be slow and/or unreliable. This falls under the heading widely known as **"Murphy's Law" :**-).

4. The first slide should be a Title Slide which includes: the title of your project, your name, your fa**culty mentor's n**ame, your department, and the program in which you were participating.

5. Ensure that all the necessary graphs, figures, etc. are embedded into your PowerPoint file. If you don't, you may display a broken link instead of the desired figure. When you display figures, they should be the most prominent feature on that slide -- not the slide title, background patterns, etc. Also be mindful of the lettering and colors in your figures so that they are readable from everywhere in the room.

6. Backgrounds should be plain so that what you put on the slide stands out. In most room light levels, slides with light backgrounds and dark lettering stand out the best. Be mindful that a good percentage of your audience may be colorblind in choosing font colors. Try not to mix more than three font colors per slide. After all, you want the people to remember *what* you said, not *how* you said it!

7. Font size should be chosen so that the people near the back of the room can read what is displayed. For most rooms, the minimum font size should be 24 point and the maximum font size should be 36 - 44 point.

8. The font family should be easy to read (e.g., Arial, Times New Roman, Verdana, etc.) and avoid sans-comic, Old English, and other fancy fonts.

9. Plan on spending about one minute per slide on average if you speak at normal speed. It is good practice to identify for yourself the slide that you want to be at halfway through your talk. That way you will have time in your presentation to make timing adjustments in your talk before your time has finished. I've heard many talks where the speakers spent 90% of their allotted time on the first 10% of their prepared material and didn't have time to discuss the really important parts at the end of their talks.

10. Don't read what is written on the slide!! Conversely, don't ignore what is displayed on the slide. Your spoken words should amplify the words displayed on the screen.

11. And finally, -- *Rehearse, rehearse, rehearse*......... (and then rehearse some more!) And then *relax* -- You know more about your research than almost everyone in the audience (with the exception of your research mentor, of course).

III. Research Project Completion -- Poster Presentation Guidelines

The following is a list of good practices for poster presentations.

1. Know the dimensions of the space allocated to your poster. This will be posted before your conference begins. The space for each OUR-UT poster presentation is 1.2m (wide) x 0.9m (tall) -- (4 feet x 3 feet).

2. Know what fastening devices (if any) will be provided (e.g., thumbtacks, tape, hook/loop, Velcro, etc.)

3. The Project Title should be prominently displayed near the top of your poster and then immediately underneath it should be: your name, your faculty mentor's name, your department. Credit to the granting agency could be placed in this section or in an "Acknowledgements" panel.

4. Use a font size that is easily readable from a distance of about 1 m. This includes graphs/figures as well as text.

5. Make sure your poster is up on schedule and taken down also on schedule.

6. Stay by your poster the entire time or if in a group, someone knowledgeable about your project is by your poster for those times you are absent.

7. If you want OUR-UT to print your poster, the background of the text boxes and poster must be white (to save printer ink) and all figures/tables/graphics must be in the jpeg format.

III. Research Project Completion -- Acknowledgement Guidelines

To show appreciation to the granting agency that gave you the means to conduct your research project, you should acknowledge their contribution. This includes presentations (both oral and poster) as well as publications of your work. Proper acknowledgement is important for the granting agency. In most cases, the program directors need to account for the expenditure of their support toward your project in their reports. Also, your work is a source of pride for them!

If you participated in one of OUR-UT programs, the appropriate credit should read: "This work was supported in part by a grant through the UT Office of Undergraduate Research" or alternately, "XYZ (your initials) acknowledges support through the (PROGRAM) program administered by the UT Office of Undergraduate Research". In many cases, multiple agencies may have contributed to your research project - either financially or by other means. Non-financial support may include access to museums, collections, or similar non-financial contributions.

Each contributing entity deserves to be acknowledged regardless of whether the contribution was financial or not.

III. Research Project Completion -- Terminating a Research Program

Research can be a very rewarding experience, but sometimes circumstances make it desirable to terminate a research project. This action should be done only after serious reflection and discussions with your research mentor and the director of OUR-UT. Your faculty mentor and OUR-UT office have invested considerable time, effort, and resources in your research project and they may be able to help you address your concerns. If the circumstances preventing your continued research involvement are temporary, allowances may be made for later resumption of your research project if your faculty mentor agrees to this interruption of your project. Please note that state-of-the-art research is very time sensitive to stay cutting-edge, so interruptions may not always be possible and should never be taken for granted. Early termination of a research project can be initiated by either: you, your research mentor, or the OUR-UT office.

Termination of a Research Program -- Student Initiated

If you do decide to withdraw from your project, you should formally do so at the first opportunity after you have made that decision for the sake of your faculty mentor and OUR-UT office. If you are participating in a program for academic credit, standard course withdrawal policies govern what the consequences will be. Discuss with your mentor what grade you should expect to receive *before* you withdraw from your project if you stop work on your project past the add/drop deadline. If you are participating in a program in which you received a stipend, then you will forfeit the remaining stipend payments and may have to repay some of the stipend depending on how many hours you have worked on your project prior to your decision to withdraw from research.

Again, discuss this matter with your research mentor and/or the director of OUR-UT *BEFORE* you take this action!

Termination of a Research Program -- Faculty Mentor and/or OUR-UT Initiated

There are various reasons that may cause your faculty mentor and/or OUR-UT to terminate your involvement in your research project. Factors that are under your control may include: insufficient research time participation of you on your project, research performance below expectations, and/or unethical conduct of research. Factors outside of your control may include: major equipment malfunction (if applicable), research project no longer relevant, and/or unforeseen medical issues. If you are participating in a program for academic credit, standard course withdrawal policies govern what the consequences will be. The factors leading to a research termination action in your specific case will affect the grade you should expect to receive. If you are participating in a program in which you received a stipend, then you will forfeit the remaining stipend payments and may have to repay some of the stipend depending on how many hours you have worked on your project prior to termination of your involvement in your research project.

IV. Reference Section

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IV. Reference Section -- Proposal Deadlines
See the Inside Front Cover page for year-specific dates.

Proposals and all supporting materials should be submitted electronically to the Office of Undergraduate Research by 11:59:59 pm on the date listed below for each program in order to receive fullest consideration. The dates listed below are subject to change. Check with the OUR-UT website for current information.

AYRP
Fall semester	4th week of September
Spring semester	3rd week of January
Summer	2nd week of May

FYSRE	3rd week of February
Research Travel Grant	Continuous

STARS
Fall semester	4th week of September
Spring semester	3rd week of January
Summer	3rd week of February

USRCAP	3rd week of February

UT - City of Toledo Internship
Fall semester	4th week of September
Spring semester	3rd week of January
Summer	3rd week of February (stipend)
	2nd week of May (academic credit)

Volunteer	Continuous

Work-Study Research Program
Fall semester	4th week of September
Spring semester	3rd week of January
Summer	2nd week of May

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IV. Reference Section -- OUR-UT Research Proposal Checklists

Checklist: (AYRP, FYSRE, STARS, USRCAP, WSRP)

_____ Filled in Cover pages.

_____ One paragraph Abstract.

_____ Five to ten seven page main body of the proposal describing in detail the research/creative activity project. Graphs, charts, etc. are included in this part of the proposal and are included in the page count. Literature references are included in this part of the proposal but are not included in the main body page count.

_____ Expected timeline for your research project.

_____ Budget spreadsheet and justification for your proposed research expenditures.

_____ One to two page statement of how the proposed research project benefits your academic plan.

The above items should be submitted as _ONE electronic (PDF)_ file in the order given in the Checklist.

_____ A letter of support from your faculty mentor with whom you would be conducting research. The letter should be submitted to OUR-UT directly from the faculty mentor.

_____ Complete paper copy of the Proposal with signed Cover page.

Proposal Submission Directions:

Please submit _electronically_ your complete proposal on disk or as an email attachment to the Office of Undergraduate Research, undergraduate.research@utoledo.edu by the appropriate deadline. The submitted proposal should be in the PDF (Adobe) format.

In addition, one paper copy of the proposal with the cover pages SIGNED, must be submitted to OUR-UT by the posted deadline. No additional print copies are needed. All materials should be received by OUR-UT by the deadline date to assure full consideration.

Your Faculty Research Mentor(s) support letter(s) should be sent separately via email (preferred) to the Office of Undergraduate Research by the proposal deadline.

ALL of the above items need to be submitted to OUR-UT by the proposal deadline for fullest consideration.

IV. Reference Section -- OUR-UT Research Proposal Checklists

Checklist and Directions for the Internship (TTKTG) applications:

All material is entered and/or uploaded through the TTKTG website (http://www.utoledo.edu/success/celcs/toledo-talent-keeps-toledo-great/application.html).

Checklist: (TTKTG Internships)

_____ Filled in Cover page information.

_____ Select the desired city office.

_____ 1-1/2 to two page statement of how the proposed research project fits into your academic plan.

_____ Budget spreadsheet and justification (ONLY if requesting additional funds).

_____ UT transcript (or if a transfer student, include your transcript(s) from your former institution(s)).

_____ Two letters of recommendation.

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IV. Reference Section -- OUR-UT Proposal Programs Cover Pages

The proposal cover pages are reproduced on the following pages and can be downloaded from the OUR-UT website (<- preferred since the downloaded file is in MS Word and editable). These cover pages must be used for submitting proposals to all of the programs administered by OUR-UT.

Proposal Number:

OUR-UT Undergraduate Research Programs

Academic Year/Summer: _____

Name:	**Date:**

Dept.:

College:

Period: ☐ Fall Semester ☐ Spring Semester ☐ Summer

Research Program:
☐ AYRP ☐ FYSRE ☐ STARS
☐ USRCAP ☐ Volunteer ☐ WSRP

☐ Other (Name): _____.

Internship Program:

☐ TolInterns ☐ Other (Name): _____.

Requested Compensation: (Check all that apply)

☐ Academic credit ☐ Stipend ☐ Supplies/Travel

Expected Graduation Date (MM/YYYY):	**Requested Budget:** $

Proposal Title:

rev. 2.1

Assurance of Compliance:

Does project involve the use of human subjects (including surveys)? ☐ yes ☐ no

If yes, IRB submission or approval date: _____.

Does project involve the use of experimental animals? ☐ yes ☐ no

If yes, IACUC submission or approval date: _____.

Does project involve the use of radiation? ☐ yes ☐ no

If yes, IRB submission or approval date: _____.

IF IRB AND/OR IACUC APPROVAL IS REQUIRED, THAT APPROVAL MUST BE GRANTED <u>BEFORE</u> ANY RESEARCH ACTIVITIES MAY BEGIN!!

Endorsements:

By submitting this proposal and signing below, you (the student) certify that you are eligible to participate in the program that you are applying to. By signing below, you (the faculty mentor) certify that you accept the mentorship of this student and this project if this proposal is funded.

Applicant (please print)	Signature	Date
Faculty Research Mentor (printed)	Signature	Date

Applicant Contact Information: (through Spring semester)

Email address:		**Phone:**
Postal address:		
City/State/Zip code:		

OUR-UT Undergraduate Research Travel Grant Program

(both pages required)
[In MS Word: Double click on the boxes to check.]

Note: The term "conference" means any type of presentation event in this proposal.
The term "journal" means any type of publication.

Note: In addition to a budget figure below, you must submit an itemized budget for your expected expenses on the standard OUR-UT Budget form.

Name:	Date:
Dept.:	Expected Graduation Date (MM/YYYY):
College:	Requested Budget:$

Program in which your research was (or will be) conducted:
☐ AYRP ☐ FYSRE ☐ Research Travel ☐ STARS
☐ TTKTG ☐ USRCAP ☐ Volunteer ☐ WSRP
☐ Other (Name): _____.

Is the travel request to conduct research or to present research at a conference?
☐ conduct research ☐ present research at a conference

If presenting, the name of the conference where your research will be presented:

City/State:	Dates of conference (or research trip):

Presentation Title, complete author list, and citation:

Presentation Abstract (For a research trip, please follow the AYRP proposal format):

Conference Details: (skip this section if requesting research travel)
Is your presentation: ☐ Invited, ☐ Competitively selected, or ☐ Volunteered?

Will the conference proceedings be published? ☐ Yes ☐ No ☐ Not sure

If the conference proceedings are published, are they refereed? ☐ Yes ☐ No ☐ Not sure

Will the research presented at the conference be submitted for publication? ☐ Yes ☐ No
    If yes, the name of the Journal: _____ .

    Is it a refereed and/or juried publication? ☐ Yes ☐ No

Is the scope of the conference: ☐ Dept/Institution, ☐ Regional, ☐ National, ☐ International?

Research Publication Details: (skip this section if requesting research travel)
The Journal to which the manuscript will be submitted: _____ .
    Is it a refereed and/or juried publication? ☐ Yes ☐ No

Is the scope of the Journal: ☐ Dept/Institution, ☐ Regional, ☐ National, ☐ International?

If you are a member of the Honors College, do you wish for this application to be also considered for funding in the Sullivan Grant program? ☐ Yes ☐ No ☐ N/A

Endorsements:
By submitting this proposal and signing below, you (the student) certify that you are intending to be physically present at the conference named in this proposal or travel to conduct research. Under most circumstances, travel reimbursement will occur AFTER the conference dates. If travel advance is given and you do not present, you will be required to fully reimburse the Office of Undergraduate Research those funds given to you. By signing below, you (the faculty mentor) certify that the research was conducted under your mentorship and that you fully approve this research presentation.

Applicant (please print)	Signature	Date
Faculty Research Mentor (printed)	Signature	Date

Applicant Contact Information: (through the semester the travel is taken)

Email address:		**Phone:**
Postal address:		
City/State/Zip code:		

Checklist:
_____ filled out cover pages
_____ filled out OUR-UT Budget form
_____ conference details or 3-5 page proposal body for research trip funding
_____ letter of endorsement from the faculty research mentor

RESEARCH INTENSIVE COURSE CONTRACT
THE UNIVERSITY OF TOLEDO

The conversion procedure could be initiated as soon as practical after registration, but must be completed by the end of the add/drop period.

Student's College: _____

Student's Name _____
                                 Last   **First**

Student's email _____   **Student's Phone #** _____

Course Instructor's Information

  Name: _____   **Dept.:** _____

  Phone: _____   **Email:** _____

Course Number and Regular Section No.: _____ **Credit Hours:** _____

Title of Course: _____

SEMESTER ☐ **FALL** ☐ **SPRING** ☐ **SUMMER** **YEAR** _____

Proposal: *(Please Print or Type)*

Proposed Title of Research: (*NOT the Course Title*) _____

_____

Proposal Description of Research: *(Attach Separate and/or additional pages if necessary)*

_____

_____

_____

_____

_____

_____

_____

Identify how the first three criteria will be met:

1. **Students must make serious attempts to advance (and/or make significant contributions to) the knowledge or understanding in the field of the investigation.** (What makes this project different than the regular course content?)

_____

_____

_____

2. **Neither the students nor the instructor have a priori knowledge of the final result(s).** (What makes this project different than the regular course content?)

_____

_____

_____

3. **The student investigators must present and/or disseminate their results to a wider audience than to just their class population.** (What form and where will you disseminate/present your research?)

_____

_____

_____

Date anticipated for fulfilling Criterion 3 _____

By signing this form and the Course Request form and submitting both forms to the Office of Undergraduate Research, the student acknowledges the added requirements associated with the Research Intensive course designation and accepts the fact that the final grade will depend on them meeting the RI requirements agreed to in this Contract.

You (the student) will NOT be able to back out of this contract past the add/drop period of that particular semester and/or summer session.

Student's signature _____ **Date** _____

Instructor's signature _____ **Date**_____

Office of Undergraduate Research
Director or Designee _____ **Date** _____

IV. Reference Section -- Standard OUR-UT Budget Summary Page

The proposal Budget Summary page is reproduced on the following page and can be downloaded from the OUR-UT website. Please use this form for submitting proposals to the programs administered by the OUR-UT. Please limit the budget line item justifications to one page, inserted into the proposal directly after the Budget Summary page. Students participating in fixed budget programs (e.g., FYSRE and USRCAP) should put in the standard approved amounts, and if known, the planned expenditures. Round UP the anticipated expenditures final amount to the nearest $25.

Please note:
- The actual budget form is in Microsoft EXCEL format when downloaded from the OUR-UT website. The total dollar amounts in the various categories are automatically summed up from the entries you provide in the spreadsheet. When you put a non-zero entry in the "Amount" column, the "$0" will be replaced automatically with the correct amount. If applying for travel assistance, typical award amounts are in the range of $200-$500.

UT Office of Undergraduate Research (OUR-UT)

Standard Proposal Budget Form

Name (Last, First):	
Program:	
Date:	

Stipend (if available and amount)	

Supplies (anticipated)

Description	Amount
TOTAL SUPPLIES:	$0

Travel (anticipated)

Description	Amount
TOTAL TRAVEL:	$0

Misc. Other Expenses (including conferences, publication, etc. - anticipated)

Description	Amount
TOTAL MISC:	$0

TOTAL REQUEST (Supplies, Travel, misc):	$0

IV. Reference Section -- Time Guidelines Tables

Please use the following tables to guide you in determining the appropriate time commitment for the various research programs. These tables (please see the OUR-UT website for specific dates) give the minimum required research time. However, the actual time commitment should be mutually agreed to between you and your research mentor *prior* to commencing your research project. Substantial deviations from the total cumulative research hours listed in the tables below require OUR-UT approval. Timecards (if required) should be signed by your faculty mentor and processed as listed in the III. Compensation Options section of this handbook. Note that the accumulated credit hours in the Fall semester are lower than in the Spring semester. This allows for research planning and discussions between you and potential faculty mentors after the Fall semester starts in August and in early September. By mid-September, you should have started on your research project in order to make meaningful progress on it by the time the semester ends. It is anticipated that you would have already made those connections before the Spring semester begins so the Spring semester accumulated hours reflect an earlier start on the research. The week of Spring Break is not included in the Table. The Research proposals submitted in the Fall semester could apply for both Fall and Spring semesters, so Spring semester-specific proposals are due after some accumulated hours are required. In those cases, plan on becoming on schedule no later than the fourth week of the semester.

For more than four credit hours, multiply the number of registered credit hours by 2.5 to obtain the recommended weekly research time commitment.

Fall semester

Semester Week	Minimum Cumulative number of research hours versus number of registered credit hours			
	1 credit hr	2 credit hrs	3 credit hrs	4 credit hrs
Week 03	RESEARCH PROPOSAL DUE			
Week 05	2.5	5	7.5	10
Week 06	5	10	15	20
Week 07	7.5	15	22.5	30
Week 08	10	20	30	40
Week 09	12.5	25	37.5	50
Week 10	15	30	45	60
Week 11	17.5	35	52.5	70
Week 12	20	40	60	80
Week 13	22.5	45	67.5	90
Week 14	25	50	75	100
Week 15	27.5	55	82.5	110
Week 16	30	60	90	120
TOTAL Hours	30	60	90	120

Spring semester

Semester Week	*Minimum* Cumulative number of research hours versus number of registered credit hours			
	1 credit hr	2 credit hrs	3 credit hrs	4 credit hrs
Week 01	2.5	5	7.5	10
Week 02	5	10	15	20
	RESEARCH PROPOSAL DUE			
Week 03	7.5	15	22.5	30
Week 04	10	20	30	40
Week 05	12.5	25	37.5	50
Week 06	15	30	45	60
Week 07	17.5	35	52.5	70
Week 08	20	40	60	80
Week 09	22.5	45	67.5	90
Week 10	25	50	75	100
Week 11	27.5	55	82.5	110
Week 12	30	60	90	120
Week 13	32.5	65	97.5	130
Week 14	35	70	105	140
Week 15	37.5	75	112.5	150
TOTAL Hours	37.5	75	112.5	150

Summer Sessions

Week (Starts the day after Memorial Day)	*Minimum* Cumulative number of research hours versus registered credit hours or if in stipend supported programs		
	Per credit hour	Toledo Internship	FYSRE and USRCAP
Week 01	3.75	30	30
Week 02	7.5	60	60
Week 03	11.25	90	90
Week 04	15	120	120
Week 05	18.75	150	150
Week 06	22.5	180	180
Week 07	26.25	210	210
Week 08	30	240	240
Week 09	33.75	270	270
Week 10	37.5	300	300
TOTAL Hours	37.5	300	300

Because there are four different sessions offered at UT during the summer, the table above lists the time commitment for a ten week research session. In general, students should plan on spending 37.5 cumulative hours on research for each credit hour for the summer session in which they are registered. Research hours can start accumulating immediately following the Spring Commencement upon approval **with the student's f**aculty research mentor.

Many people take vacations during the summer so the student researcher can work extra prior to the time off (again, with faculty resea**rch mentor's** approval) so that the cumulative hours criterion is met.

IV. Reference Section -- Timecards

   Student participants *are required* to keep track of their time spent on their research project and report it to OUR-UT for all OUR-UT compensated programs (i.e., AYRP, FYSRE, STARS, USRCAP, and TolInterns). For these programs we would like to go paperless and have you email us a copy of your timecard signed by your faculty mentor. The Work-Study Research Program (WSRP) has different reporting requirements in which you send your timecard directly (but copy us on it) to the UT office that administers the federal Work-Study program. Timecards are optional - *but encouraged* - for strictly volunteered time (VL). If your fa**culty mentor isn't** available to verify your time, have your department chair (or other person knowledgeable of your project) verify in place of your faculty mentor. Please note that stipends are NOT paid by the hour, but the time tracking is required for research effort documentation.

All time cards except Faculty Grant supported and WSRP should be emailed to OUR-UT.

WSRP timecards should be submitted directly to the Work-Study office (with a copy sent to OUR-UT).

Faculty Grant supported timecards should be processed directly through the fa**culty mentor's dep**artment (with a copy sent to OUR-UT).

IV. Reference Section -- UGR2980: Issues in Research and Scholarship

This is a summer seminar series, in which attendance is required for students participating in the FYSRE and USRCAP programs. Those participating the TolInternship program are highly encouraged to attend if their schedule permits. The current summer syllabus will be posted on OUR-**UT's web site when it becomes est**ablished. However, the subjects are expected to be similar to the previous summer and are listed in the following page. Even though attendance is required, formal registration for UGR2980 is optional. Currently, this course is offered only during the summer.

Catalog Description:
Seminar series addressing various issues in research, including safe laboratory practices, regulatory compliance issues, and ethics issues in research, scholarship, and creative activities. Topics are chosen to be relevant to students in both the STEMM (Science, Technology, Engineering, Mathematics, and Medicine) and the non-STEMM disciplines.

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Schedule: One meeting per week, usually on Thursday, 10:00am - 11:00am
Sullivan Hall, main campus

Suggested Texts:
"*Introduction to the Responsible Conduct of Research***," Nichol**as H. Steneck, US HHS ORI publication

"*Little Book of Plagia***rism," Rich**ard A. Posner, Publisher: Pantheon (January 16, 2008), ISBN: 037542475X

"*On Being a Scientist: A Guide to Responsible Conduct in Research,***" 3rd ed., Committee on** Science, Engineering, and Public Policy, The National Academies Press, (2009), ISBN: 978-0-309-11970-2. (See http://www.nap.edu for a free download pdf of this book.)

Additional selected readings may be provided by the speakers

Grade: Credit/NC

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Syllabus, Typical Summer

Week 01:	*Welcome Reception (12 noon)*	Provost
Week 02:	*Laboratory Safety*	Safety and Health
Week 03:	*Research Ethics and Compliance*	Office of Research Administration
Week 04:	*Plagiarism and Academic Honesty*	Writing Center
Week 05:	*Ethics and Commitment in Research*	Honors Program
Week 06:	*Doing Advanced Research in the Library*	Library Administration
Week 07:	*Business Prospects and Patents*	Office of Research Administration
Week 08:	*Diversity Issues in Research*	Institutional Diversity
Week 09:	*Summer Recap & Miscellaneous*	Office of Undergraduate Research
Week 10:	*Research Presentations (all day)*	Undergraduate student researchers

IV. Reference Section -- Advisory Committee for Undergraduate Research (ACUR)

<u>Charge:</u>
    To oversee, advise, and assist the Office of Undergraduate Research in promoting and conducting undergraduate research at The University of Toledo.

<u>Composition:</u>
    The following colleges (or areas of colleges) will have one member each.
        College of Arts and Letters
            Area: Language, Literature, and Social Sciences
            Area: Communication and the Arts
        College of Natural Sciences and Mathematics
        College of Business and Innovation
        Judith Herb College of Education
        College of Engineering
        College of Health and Human Services
            Area: Health Sciences
            Area: Social Justice and Human Service
        Jesup Scott Honors College
        University Libraries
        College of Medicine and Life Sciences
        College of Nursing
        College of Pharmacy and Pharmaceutical Sciences
        University College (formerly College of Adult and Lifelong Learning)
Also serving on the committee:
        Director, Office of Undergraduate Research, (*ex officio*)
        Associate Director, Office of Undergraduate Research, (*ex officio*)
        One member from the Office of Research
        One member from Student Government

<u>Duties:</u>
    The committee will meet at the beginning of each semester to establish the calendar for that semester, and as needed throughout the semester. The committee will form the selection committee to determine the recipients of the university wide, internally funded undergraduate research programs (currently, the Undergraduate Summer Research and Creative Activities Program USRCAP and the First Year Summer Research Experience FYSRE). The Director of Undergraduate Research will present an Annual Report to the committee each Fall semester covering the previous academic year and summer.

<u>Duration:</u>
    With the exception of the representative from Student Government (1 year term) and the OUR-UT Director and Associate Director (*ex officio*), the terms of appointment for the members are three years, with the possibility of reappointment.

IV. Reference Section -- UT Main Campus Academic Calendar

The official UT Main Campus calendar can be downloaded from the UT Main Campus Provost's website. A link to it will be on OUR-UT's website and the current year is reproduced on the next two pages for your convenience