

## Course Syllabus

### Welcome to Astronomy 100!

We're going to be exploring the Universe in this class, from our own planet Earth to the farthest reaches of our telescopes. This class is unusual in that you are going to simulate being interns-in-training at a science museum, preparing to teach the visiting public about the wonders of astronomy. We hope that you'll enjoy seeing this as a bit of a game and focus on the joy of learning and discovery instead of stressing about scores and grades.

The format is semi-asynchronous: you will attend one lecture and one discussion section in most weeks, with a significant amount of independent study. Your grade is mostly composed of numerous "appraisals" that replace homework and midterm exams. While there are deadlines, the penalty for completing the appraisals late is relatively low, giving you flexibility in when you complete your coursework. You can even work ahead!

Since this format is likely very different from your other classes, please carefully read the rest of this syllabus! We'll review how everything works in the Orientation Unit.

### Instructor

- Benedikt Diemer (he/him)
- Email: [diemer@umd.edu](mailto:diemer@umd.edu) (<mailto:diemer@umd.edu>) (please include "ASTR100" in the subject line of your emails)
- Office: Physical Sciences Complex 1107
- Office hours: Monday 3-4pm (in person)

### Teaching Assistants & Discussion Sections

You are registered for one of the discussion sections for this course, listed in the table below. All students must attend their appropriate discussion sections **starting Friday, February 3** in ATL 2400. Note that Friday discussion sections start during the 2nd week, while Monday discussion sections start in the 3rd week of the semester. After that, you will attend your discussion every week (see the schedule below). Your TAs will introduce themselves during your first Discussion Section meeting. Below is their contact information, including their office hours. If you need help, please feel free to come to any of us, not just your own TA.

Section	Day and Time	TA	Email	Office Hours	Syllabus
0101	Monday 10-10:50 am	Emeline Fromont	<a href="mailto:efromont@umd.edu">efromont@umd.edu</a>	Wednesday 2-3pm, PSC 1238	<a href="https://umd.instructure.com/courses/1343848/files/71763693?wrap=1">Link (https://umd.instructure.com/courses/1343848/files/71763693?wrap=1)</a> ↓ ( <a href="https://umd.instructure.com/courses/1343848/files/71763693/download?download_frd=1">https://umd.instructure.com/courses/1343848/files/71763693/download?download_frd=1</a> )
0102	Monday 2-2:50 pm	Livingstone Imonitie	<a href="mailto:limoniti@umd.edu">limoniti@umd.edu</a>	Monday 12-1pm, ATL 1349	<a href="https://umd.instructure.com/courses/1343848/files/71498130?wrap=1">Link (https://umd.instructure.com/courses/1343848/files/71498130?wrap=1)</a> ↓ ( <a href="https://umd.instructure.com/courses/1343848/files/71498130/download?download_frd=1">https://umd.instructure.com/courses/1343848/files/71498130/download?download_frd=1</a> )
0103	Monday 3-3:50 pm				

0104	Friday 11-11:50 am	Pallavi Salvi	psalvi@umd.edu	Friday 9:45-10:45am, ATL 1345	<a href="https://umd.instructure.com/courses/1343848/files/71747344?wrap=1">Link (https://umd.instructure.com/courses/1343848/files/71747344?wrap=1)</a> ↓ <a href="https://umd.instructure.com/courses/1343848/files/71747344/download?download_frd=1">https://umd.instructure.com/courses/1343848/files/71747344/download?download_frd=1</a>
0105	Friday 12-12:50 pm				
0106	Friday 1-1:50 pm	Siobhan Light	slight@umd.edu	Tuesday 1-2pm, ATL 1243	<a href="https://umd.instructure.com/courses/1343848/files/71726940?wrap=1">Link (https://umd.instructure.com/courses/1343848/files/71726940?wrap=1)</a> ↓ <a href="https://umd.instructure.com/courses/1343848/files/71726940/download?download_frd=1">https://umd.instructure.com/courses/1343848/files/71726940/download?download_frd=1</a>

## Schedule & Lectures

The lectures will be held in person in PHY 1412 from 9:30-10:45 AM on Tuesday and Thursday. All students must attend the first lecture on January 26. After this initial week, you will attend **only one lecture per week!** This will free up lots of time for independent study (and, if you're so inclined, sleeping in). However, it also means that:

- You do need to **attend your one lecture in person**. Attendance will be part of your grade, and you'll struggle in the course otherwise.
- The lectures will move at a **fast pace** and there won't be much repetition, so you'll need to be awake despite the early hour!
- You should **not double-book yourself** for the other lecture period that you're not regularly attending because we might need to combine lectures on short notice (e.g., due to weather, your instructor getting sick, etc).

Which lecture you attend is defined by your discussion section: **Tuesdays for 104-106** and **Thursdays for 101-103**. If you would prefer to attend a different lecture, please either switch your discussion section registration or contact the instructor. Switching once or twice (e.g., because of sickness or an emergency) is no problem.

Week from ... to ...			Monday Discussion	Tuesday Lecture	Thursday Lecture	Friday Discussion
1	23-Jan	27-Jan	---	---	Everyone	---
2	30-Jan	3-Feb	---	0104, 0105, 0106	0101, 0102, 0103	0104, 0105, 0106
3	6-Feb	10-Feb	0101, 0102, 0103			
4	13-Feb	17-Feb				
5	20-Feb	24-Feb				
6	27-Feb	3-Mar				
7	6-Mar	10-Mar				
8	13-Mar	17-Mar				
--	20-Mar	24-Mar	Spring Break			
9	27-Mar	31-Mar	0101, 0102, 0103	0104, 0105, 0106	0101, 0102, 0103	0104, 0105, 0106
10	3-Apr	7-Apr				
11	10-Apr	14-Apr				
12	17-Apr	21-Apr				
13	24-Apr	28-Apr				
14	1-May	5-May				
15	8-May	12-May		Everyone	Everyone	---
16	15-May	19-May	Final exam on Monday May 15, 8-10am			---

Assignments are due on Monday nights, so your weekly schedule will be:

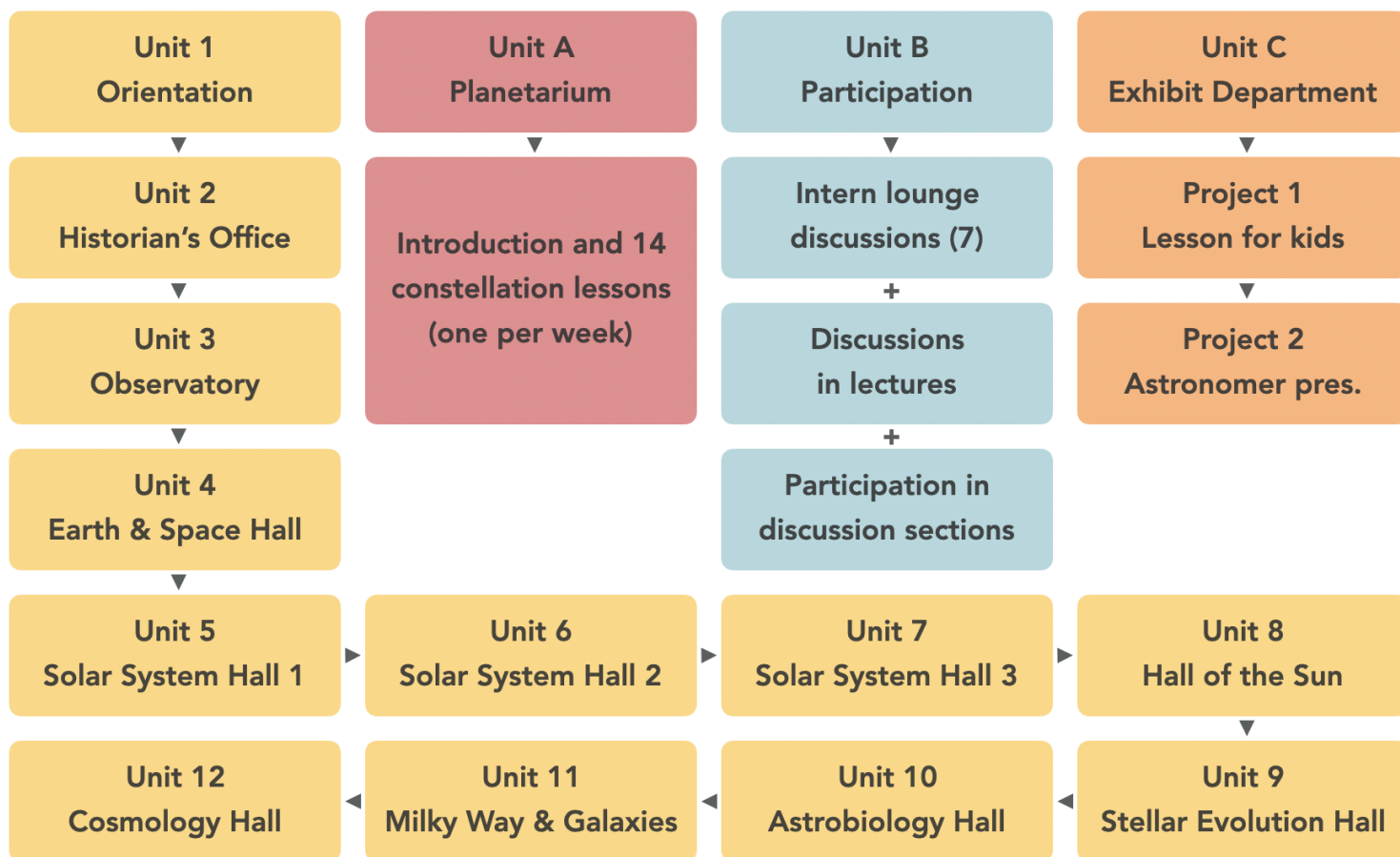
- Attend lecture on Tue/Thu (lecture slides will be available about one day in advance)
- Attend the following discussion section on Fri/Mon
- Complete each week's assessment by Monday night (more below)

If you wish to drop the course, you can do so without a "W" by February 7 and with a "W" by April 11. Please see

<https://www.registrar.umd.edu/deadlines.html> for other university-wide deadlines.

## Course content

The class is divided into two types of modules. The numbered units (1-12) are the main content of the class, and you will move through them sequentially. The lettered units (A/B/C) consist of various components that you will complete in parallel throughout the semester. The following flowchart shows an overview:



Each unit contains two Canvas modules, where the first module is just a *Getting Started* survey to acknowledge the unit's deadline. The second module is the actual *Training* module, which contains your tasks for that unit. Future modules are locked until certain tasks are accomplished in previous modules. Often, this means that you'll click the *Mark as Done* button at the top right or bottom right of a Canvas page; other times it means submitting an appraisal or posting in a discussion.

### Units 1-12 (Main Course Material)

The training modules for units 1-12 contain the materials for the actual lesson (usually in two parts) and the appraisal. The materials are taken from our textbook, the freely available [OpenStax Astronomy](https://openstax.org/details/books/astronomy). They are embedded in the Canvas modules, but you can also read the pdf version of the textbook if you prefer. You can go back to improve your score on a unit up until the unit's deadline. You may also request one extra attempt, but you must visit office hours before a second deadline, as summarized in this table:

Unit number	Topic	Due Date	Deadline to Request Extra Attempt
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Unit 1	Orientation	Monday, Feb. 6, 11:59 pm	Mar. 6, 11:59 pm
Unit 2	Historian's Office	Monday, Feb. 13, 11:59 pm	Mar. 13, 11:59 pm
Unit 3	Observatory	Monday, Feb. 20, 11:59pm	Mar. 20, 11:59 pm
Unit 4	Earth & Space Hall	Monday, Feb. 27, 11:59 pm	Mar. 27, 11:59 pm
Unit 5	Solar System 1	Monday, Mar. 6, 11:59 pm	Apr. 6, 11:59 pm
Unit 6	Solar System 2	Monday, Mar. 13, 11:59 pm	Apr. 13, 11:59 pm
Unit 7	Solar System 3	Monday, Mar. 27, 11:59 pm	Apr. 27, 11:59 pm
Unit 8	Hall of the Sun	Monday, Apr. 3, 11:59 pm	May 3, 11:59 pm
Unit 9	Stellar Evolution Hall	Monday, Apr. 10, 11:59 pm	May 10, 11:59 pm
Unit 10	Astrobiology	Monday, Apr. 17, 11:59 pm	May 10, 11:59 pm
Unit 11	Milky Way & Galaxies	Monday, Apr. 24, 11:59 pm	May 10, 11:59 pm
Unit 12	Cosmology Hall	Monday, May 1, 11:59 pm	May 10, 11:59 pm

## Unit A (Planetarium)

The training module for the Planetarium unit includes 15 lessons in which you'll learn to find some of the bright stars and constellations visible in the evening sky from our location. You may work through these lessons at your own pace, though I recommend a pace of about one per week for low stress and high success. The Planetarium appraisal will be available starting Monday, May 1, at 11:59pm and must be completed **by Monday, May 8**, at 11:59pm. This is the **only appraisal that you may only attempt once**. Don't start it until you're prepared to focus on it!

## Unit B (Participation)

You'll have multiple opportunities to interact with your fellow interns (aka students) in this intern training program (aka class). Learning happens best in a community, which we can build if you participate and bring your unique voices to our conversations. There are three types of interactions: Intern Lounge Discussions, Lectures, and Discussion Sections. They combine to form Unit B.

**Intern Lounge Discussions:** For these online discussions, you will post comments on a given topic and respond to others on Canvas Discussion boards. Because this class is large (about 200 students in six discussion sections), you'll be in a group with about 30-40 students for all of the Intern Lounge Chats, so that you're not overwhelmed with posts to read and to make it easier to have conversations in a smaller group. In week 1, you will introduce yourselves in the introductions forum. Your initial introductory post is due by Tuesday of week 2, January 31, at 11:59pm (unless you add the course after this deadline). Details about the introductions assignment are in the description at the top of that discussion page. Responses to your classmates are due by Monday of week 3, Feb. 6, at 11:59pm. After this introduction round, you will have 6 other Intern Lounge Chat assignments, each over two-week periods. During the first week of each two-week period, you'll post your own comment on the prompt (by Monday midnight) and start responding to your classmates. Your conversations will continue in the second of the two weeks. Your main post should be around 200 words, and your responses must be thoughtful (not merely saying "nice post"). You can respond to responses on your own comment, back-and-forth discussions are encouraged! There is a rubric in each to show you how you will be graded. Full credit is awarded for exceptional engagement. I encourage you to engage with each other in conversation as we build our learning community.

**Discussions in lectures:** During lectures, we will have small-group and whole-class discussions about "big picture" questions that are broader in scope than those on the appraisals and also may be somewhat opinion-based. As an intern for a science museum, you would need to be prepared to respond knowledgeably to these sorts of questions. During the last portion of class time, each student will complete a short reflection or assignment about their response to the questions for the day. These lecture assignments will be listed as part of the Unit B module, and there will be a grading rubric attached to each. We will complete of these lecture assignments in most, but not all, lectures. The lowest lecture assignment will be dropped, i.e., you get one un-excused absence from lecture over the course of the semester.

**Participation in discussion sections:** Most of your discussion sections will be dedicated to your questions about the course material and for the TA's explanations. In the remaining time of each week's discussion, you will discuss current astronomical events in the context of what you are learning in the course. Each student will complete a short assignment, as listed in the Unit B module; there is a grading rubric attached to each. As for the discussions in lectures, the lowest discussion section assignment is dropped, i.e., you get one un-excused absence from your discussion section over the course of the semester.

## Unit C (Exhibits Department)

The Exhibits Department in a museum is where scientists, educators, designers, and makers work together to build the displays that visitors see. This is where you'll practice explaining what you've learned to (imaginary) science center visitors. There will be two projects: a 3-minute recorded video presentation where you explain a concept from class for kids, and a presentation on a particular astronomer. More details on these will be given in the Exhibits Department Training Module.

## Grading Policy

Grading in this class is different than what you're probably used to. The priority is for you to learn, and it's often hard to learn something the first time. In fact, your understanding is often deeper after you've made a mistake and corrected it. Thus, you'll automatically have **two tries on the unit assessments** (which are called "appraisals"). You will have **two hours** to complete each appraisal. If you don't do as well as you would like, you may unlock additional tries by coming to Office Hours (either mine or one of the TAs') to discuss what you missed.

All appraisals and other assessments will be **due on Monday night** at midnight. However, if you miss one of these deadlines, the penalty is only 10% -- and that's regardless of when you hand it in. This system encourages you to finish your appraisals each week, but it means that you can also submit one or two appraisals late without jeopardizing your grade. Given the low cost of missing an appraisal, I will **not generally give out extensions** on the appraisals unless you experience a multiple-week emergency that would seriously affect your grade.

The Intern Lounge discussions, discussions in lectures, and discussion sections have more structure because the rest of your group is depending on you to bring your voice to the conversation while it's happening. That said, **late posts are accepted for less than full credit** (the exact amount of late deduction is at the grader's discretion, but is at least 10%). Please do everything in your power to post on time. Even if late, you must post in each discussion because the next discussion will not unlock until you do. For the lecture discussions, I will **drop your worst grade** equivalent to one unexcused absence from a discussion. The grading policy for the discussion sections is up to the respective TA.

The projects in the "Exhibits Department" unit also have specific deadlines because we need time to grade them and if you procrastinate, you'll be in a lot of trouble in the course. You'll have around a month for each of them, so there's time to plan ahead to avoid missing the deadline. Exhibits projects will be **deducted 10% for each week** they are late. Your overall grade will be composed of the following components:

Unit	Counts	Explanation
Units 1-12	60%	12 appraisals at 5% each
Unit A	5%	One Planetarium appraisal
Unit B	15%	Intern Lounge discussions 5%, lecture discussions 5%, discussion section part. 5%
Unit C	5%	Two projects, 2.5% each
Final exam	15%	In-class final

The resulting percentile grade will translate into a letter grade as follows:

Grade	Min. %	Max %
A+	97	100
A	93	97

A-	90	93
B+	87	90
B	83	87
B-	80	83
C+	77	80
C	73	77
C-	69	73
D+	65	69
D	61	65
D-	57	61
F	0	57

## Other Policies

The university maintains a [Course-Related Policies](https://www.ugst.umd.edu/courserelatedpolicies.html) page with extensive information regarding academic integrity, absences and make-up work, grading, and other topics. You should be familiar with these policies.

**Academic integrity:** UMD has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council (see [Course-Related Policies](https://www.ugst.umd.edu/courserelatedpolicies.html) for details). Some of the most important points are:

- Do not cheat or participate in academic dishonesty, which includes fabrication, plagiarism, or helping another person to do any of these things.
- Complete your own work. Cite sources and references accordingly.
- If you need assistance with citing your sources, please ask for help. In particular, you may discuss the unit material with others to increase your understanding, but you should not be asking for specific answers to appraisal questions, nor should you be giving others specific answers to appraisal questions.

All suspected violations will be sent to the University's Honor Council.

**Absences and extensions:** Given the grading policy laid out above, it will generally not be necessary to ask for extensions because there is only a minimal penalty for late appraisals and worst grades are dropped from some other grading units. However, if you have a serious illness or emergency and are absent for multiple weeks, please let me know.

**Communication:** You are expected to read your UMD email and Canvas messages/announcements frequently. All course communications will be disseminated through one or both of these methods. If you need to contact me or one of the TAs, we prefer email (see contact information at the top of this page).

**Accommodations:** We all learn differently. If there are aspects of this course that you feel prevent you from learning or exclude you, please let me know as soon as possible. If you have a disability, please register with the [Accessibility & Disability Services](https://www.counseling.umd.edu/ads/) (ADS) office. Through them, you can easily request accommodations such as extra time on quizzes and exams. I appreciate if you also let me know; I am always happy to discuss accommodations of course!

**Inclusive learning environment:** This course encourages scientific discussion and collaboration as a means of learning. Thus, we will find likely find ourselves in disagreement or debate at times. It is important that we agree to conduct our conversations in a professional manner and to foster a virtual classroom environment in which everyone feels included and respected. I will make every reasonable attempt to create an atmosphere in which every student feels comfortable voicing their argument without fear of being personally attacked, mocked, demeaned, or devalued. Any behavior that threatens this atmosphere will not be tolerated, including harassment, sexual harassment, and derogatory language with respect to

race, gender, culture, nationality, or any other personal characteristic. In discussion, please let everyone speak and respect each other's point of view. Please alert me immediately if you feel threatened, dismissed, or silenced at any point during our semester or if your engagement in our discussions has been hindered by the learning environment in any way.

**Religious observances:** It is your responsibility to inform me in advance of any intended absences for religious observances. This prior notification is especially important for final examinations because failure to reschedule a final examination before the conclusion of the exam period may result in zero credit.

**Possible changes due to COVID:** Although our goal is to maintain a fully in-person campus environment this fall, we still live in quickly changing times! It is possible that we might need to adapt the course in certain ways, e.g., by switching to instruction via zoom on short notice.

## How to Succeed in ASTR 100

**Ask questions:** We (the TAs and I) care deeply about your learning and we are here to help you. We are always happy to engage with you around questions or difficulties that you might face, but we can only do that if you reach out and ask! Most students don't like asking questions and/or feel shy about approaching the instructor and TAs -- but the most successful students are those who ask questions.

**Engage regularly:** This class is set up with a great deal of time flexibility, while (hopefully) providing the structure many of us need to avoid getting overwhelmed. This allows you to optimize your effort so that you can engage with the course material at optimal times. However, it can also make it easy to fall behind. I encourage you to put regular times on your calendar for interaction with this class, for instance those days where you would otherwise attend lecture. Trying to do a lot at one time can leave us feeling overwhelmed and frustrated, but doing a smaller amount more frequently can give us a feeling of progress and success. It also results in better learning outcomes because you're reinforcing the new information regularly.

**Develop a "growth" mindset:** If you are unfamiliar with the terms "fixed mindset" and "growth mindset," check out this [10-minute TED Talk by Carol Dweck](https://www.ted.com/talks/carol_dweck_the_power_of_believing_that_you_can_improve) (https://www.ted.com/talks/carol\_dweck\_the\_power\_of\_believing\_that\_you\_can\_improve), a researcher from Stanford University, in which she highlights the huge difference a shift in your mindset can make. For example, if you receive a bad grade, do you believe it is because you are just not good at the subject? Or do you see it as an indication that you need to study a bit harder and/or reach out for help in order to do well next time? All students with the necessary prerequisites have the ability to be successful in this course, and failures or challenges should be viewed as learning opportunities. As you begin this course, please consider what you need to do to develop a growth mindset, and approach all course activities accordingly. Carol Dweck's research shows that every time you push yourself out of your comfort zone and learn something new, you're creating new neural connections and getting smarter!

## University Resources


Below is a sample of university resources that you may find helpful during the course of the semester. You can find links to further relevant resources at the UMD Course Policies webpage (<https://www.ugst.umd.edu/courserelatedpolicies.html>).

**Study skills for science:** Learning science (and math) is different from learning other types of subjects. In this class, we focus on understanding concepts rather than memorization of facts. If you'd like help learning some study skills that will help you succeed, please visit [Tutoring & Academic Success](http://tutoring.umd.edu) (http://tutoring.umd.edu) for resources.

**Writing center:** UMD offers live tutoring and 24-hour feedback for your writing as part of your undergraduate enrollment. I strongly recommend taking advantage of this resource, especially for honing your writing skills in the intern lounges. See <https://english.umd.edu/writing-programs/writing-center> (https://english.umd.edu/writing-programs/writing-center) for more information.

**One Button Studio:** UMD has easy-to-use "One Button" recording studios throughout campus that include high-resolution cameras, studio microphones, and a projector. These enable people with no production experience to make high-quality video recordings, such as those for the class

project. Please see <https://faculty.umd.edu/1button-studios>  [. \(https://faculty.umd.edu/1button-studios\)](https://faculty.umd.edu/1button-studios) for more information on how to access the One Button Studios.

**Basic needs security:** UMD has a campus food pantry, network that assists with food and stable housing and otherwise assists students who are/were in foster care, houseless, or without a supportive family system, and a student crisis fund for those who are in need of immediate financial support. Please see <https://studentaffairs.umd.edu/basic-needs-security>  [. \(https://studentaffairs.umd.edu/basic-needs-security\)](https://studentaffairs.umd.edu/basic-needs-security) for more information.