

CE 4011/5570: Design for Sustainable Development: Discovery, Bangalore, India

May Term 2016: May 14 – June 5, 2017

3 Credits

INSTRUCTORS:

Adam Boies

Assistant Professor, Department of Civil, Environmental, and Geo- Engineering, University of Minnesota

boies008@umn.edu

612-301-7137

Fred Rose

Acara Director

Institute on the Environment, University of Minnesota

rosex122@umn.edu

612-845-0297

Aruna Raman

Acara India Program Coordinator

Institute on the Environment, University of Minnesota

arunauminn@gmail.com

+91-99000-83738

COURSE OVERVIEW:

While populations in developed nations benefit from widespread modern infrastructure, access to reliable infrastructure services remains limited in developing nations. Rapidly urbanizing populations growing in size and affluence often do not own and cannot access the infrastructure required for a healthy, safe, and productive life. Urban and rural population growth often is not accompanied by commensurate development of transportation, housing, water supply, wastewater, solid waste, and energy systems. The resulting challenges are enormous. For instance, electricity is often unreliable, leading residential and commercial establishments install a patchwork of private back-up diesel generators. Women may wait in long lines for over-priced water from private water purveyors because water infrastructure or sufficient supply does not reach their homes. Aging sewage pipelines remain broken because the wastewater utility cannot recover its operational costs under financial tariff structures. Low-income communities are especially excluded from access to reliable public services. Because realizing access to efficient, affordable, and safe products and services is necessary to improve public health and livelihoods, professionals from various disciplines can take an important role in supporting creation of impactful technologies and services in developing societies to address societal and environmental challenges while generating revenue.

In May 2017, the University of Minnesota will lead students on a pathway of exploration in CE4011/5570: Design for Sustainable Development: Discovery. This three-week course will introduce students to engineering and social entrepreneurial aspects of urban and rural development in Bangalore, India. Through guest lectures, field visits and workshops, students will investigate the role of engineers, designers and other community leaders in achieving sustainable access to products and services through social entrepreneurial approaches. By the end of the course students will have an appreciation for infrastructure and other engineering challenges of urban and rural development, and for how effective sustainable technical solutions must fit within a broader socio-economic context.

This class is open to upper-level undergraduates (students with advanced standing - juniors or seniors - with a minimum 3.0 GPA) and graduate students at the University of Minnesota. The class will have four pre-departure meetings in Minnesota. The global seminar will occur May 14 to June 4, 2017, including travel time.

COURSE OBJECTIVES

To explore development, environment, engineering, and infrastructure issues in India, with a focus on:

- Issues, challenges, and solutions in urban and rural Indian communities.
- How communities can effectively participate in the design and management of products and services.
- Ways in which infrastructure engineering in India differs from in the United States.

To explore the role of business and technology in creating effective approaches to provision of technologies and services in India including:

- Principles of and approaches to sustainable development (top-down and bottom-up).
- Roles of institutions (government, NGOs, business) in sustainable development.
- Roles of engineers, designers, entrepreneurs, and appropriate technology in sustainable development to improve living conditions.
- Successes and failures in the use of technology and business to support development.
- How engineers and entrepreneurs create ventures to address social and environmental challenges.
- How to develop and communicate business models to address development challenges in India.

EDUCATIONAL OBJECTIVES:

The course is designed so students will demonstrate the following:

- Global awareness of social, economic, and technical challenges in developing societies.
- Inter-cultural and interdisciplinary skills, including communication.
- Understanding of professional and ethical responsibility.
- Understanding of international and sustainable development.
- Understanding the role of entrepreneurs and engineers in sustainable development.
- Understanding of how to create effective market-based approaches to development challenges.
- Understanding of how and why infrastructure and other engineered systems in India are designed and operated differently than in the United States.

TEACHING METHODS:

- In-class presentations by invited experts, including researchers and practitioners from non-governmental organizations, businesses, entrepreneurial groups, government, and academia.
- Field visits to communities and project sites in and around Bangalore.
- Readings on engineering, business, and society in India.

- In-class discussions & student presentations.
- Regular written reflections by students including journals, required blog posts, and a final paper.

CREDITS AND WORKLOAD EXPECTATIONS:

Design for Sustainable Development: Discovery is an intensive three-credit field course. Expect to spend 25-30 hours before the class starts for pre-departure meetings, required reading, and travel preparation. Expect 8 or more hours per day in course-related activities while in India.

GRADING:

See separate document

PRE-DEPARTURE COURSE MEETINGS & ASSIGNMENTS**Meeting 1 – What’s the Plan?: Course Introduction**

Monday, February 27, 2017 @ 17:00-19:00 in IonE R370 (dinner included)

Key Questions:

- What is Design for Sustainable Development: Discovery? What are the course objectives? What are next steps to prepare for this class?

Activities:

- *Course intro and outline:* Introductions, review of course content and outline.
- *Logistics preparation:* Review of next steps to prepare for India.
- *Assignment distribution:* *The End of Karma* and FlipGrid introductions.

Assignments Given:

- **Assignment 1 – Due by March 21, morning:** Introduce yourself to the class with a FlipGrid video at <http://flipgrid.com/#cege5570> , up to 90 seconds.
- **Assignment 2 – Due by March 21, morning:** Watch one India-focused TED talk or documentary provided below. Submit a 90 second FlipGrid video at <http://flipgrid.com/#cege5570> to reflect on one of the TED talks using a “what, so what, now what” approach in Appendix A. Be prepared to discuss your review in meeting 2.
 - East vs West - the myths that mystify: http://www.ted.com/talks/devdutt_pattanaik?language=en
 - India's hotbeds of invention: https://www.ted.com/talks/anil_gupta_india_s_hidden_hotbeds_of_invention
 - Why is India so filthy? (story of the Ugly Indian): <https://www.youtube.com/watch?v=tf1VA5jqmRo>
 - Dilli: See Moodle folder. 22 minute documentary on migrants in New Delhi (Dilli).
- Review *Appendix D: Logistics Next Steps*.

Meeting 2 – What’s the Problem: Quality of Life in India

Tuesday, March 21, 2017 @ 18:00-20:00 in IonE R370 (dinner included)

Key Questions:

-

Activities:

- *Dinner with Aruna Raman and Adam Boies*
- *Discussion:* Organization and activity preview.
- *Review logistics preparation:* Review next steps for preparing for India.

Assignments Given:

- **Assignment 3 – Due by April 24:** Read *The End of Karma* (handed out in meeting 1). Submit a 90 second FlipGrid video at <http://flipgrid.com/#cege5570> describing one character from the book and how their aspirations/situation are relatable to you. Be prepared to discuss your summary in meeting 2.
- **Assignment 4 – Due by April 14:** Take the Intercultural Development Index (IDI) Survey
- **Assignment 5 – Due by April 24:** Take the Intercultural Learning Tutorial and complete cultural FlipGrid. The tutorial is here: TBD. Submit 90-second video on FlipGrid video at <http://flipgrid.com/#cege5570> addressing the following: What goals and expectations do you have for the trip with regard to building intercultural competence? What do you think will be the biggest challenge for you?

Meeting 3 – Ready, set, . . . here we go!: Final India preparations

Monday April 24, 2017 @ 18:00-20:00 in IonE R370 (dinner included)

Key questions:

- What is our cultural identity and perspective? What are behavior expectations for the program?
- What struck you in *The End of Karma*? How does quality of life differ between India and the US? How is quality of life indicated? What challenges did the people face in the community? How did people overcome challenges in their lives? What does the story tell you about Indian culture?

Activities:

- *Discussion*: IDI tutorial results, cultural FlipGrid question review.
- *Discussion*: Book review, *End of Karma*
- *Expected behavior*: Discuss behavior expectations for the course.
- *Blog guidance*: Brief on class blog use and etiquette.
- *Logistics*: Follow up with final logistics issues.

Assignments Given:

-
- **Assignment 6 – Due by arrival in India**: Background on assigned visits. Be prepared to lead discussion before, during and after visit to the organization.
- **Assignment 7 – Due in India**: Two photo-blog entries per student, to be posted on the course blog. Guidelines and dates for posting will be discussed pre-departure. See Appendix A for helpful questions to guide reflection. You may check out past India blogs: [2015](#), [2014](#).
- **Assignment 8 – (x3) Due in India. Reflection Document due at end of each week.**
- **Assignment 9 - (x2). Due in India.** Design Project Summary. Due after SELCO Urban and SELCO Rural visit.
- **Assignment 10-Due by 6/19/17: Final Reflection Paper.**

Additional Assignments

Optional Pre-Departure/Travel Reading: Students are advised to buy and read one of the following books: (1) [Maximum City](#) by Suketu Mehta (2005), (2) [White Tiger](#) by Aravind Adiga (2008), (3) [The Red Carpet](#) by Lavanya Sankaran (2006), (4) [In Spite of the Gods](#) by Edward Luce (2008), (5) [Shantaram](#) by Gregory David Roberts (2005), (6) [India Calling: An Intimate Portrait of a Nations Remaking](#) by Anand Giridharadas (2012), (7) [Behind the Beautiful Forevers](#) by Katherine Boo, (2012), (8) [Sacred Games](#) by Vikram Chandra (2006)

Only for graduate students:

- **Assignment 11 - Due by 6/19/17** – A venture summary covering an organization met during the course time in India. The venture summary should be structured using the criteria in Appendix B. This report is required for all graduate students (enrolled in CE 5570). The specific venture will be selected while in India. The final summary will be due via the course Moodle (please name it YOURLASTNAME_CE5570_ASSN11).

Only for undergraduate students seeking CSE technical elective credit:

- **Assignment 12 - Due by 6/19/17** – A problem set focused on environmental engineering problems observed during the class in India. The technical assignment may be required for undergrad CSE students (CE 4011) seeking technical elective credit; talk to us to see if it is required. The technical assignment is due via Moodle (please name it YOURLASTNAME_CE5570_ASSN12).

INDIA PROGRAM TENTATIVE OUTLINE (A detailed updated schedule will be sent prior to departure)

- See separate document

INDIA PROGRAM PARTNERS

Partner: Native Place

Sector: Local history

Description: Native Place and works to build awareness of Bangalore's local history and culture through curated experiences, travel writing and city based collaterals.

Website: <http://creativemornings.com/talks/aliyeh-rizvi/1>

Partner: Hasiru Dala

Sector: Waste management

Description: This non-profit works with waste picking communities in Bangalore to improve conditions.

Website: <http://hasirudala.in>

Partner: SELCO

Sector: Solar lighting and energy access

Description: SELCO Solar Pvt. Ltd, a social enterprise established in 1995, provides sustainable energy solutions and services to under-served households and businesses.

Website: <http://www.selco-india.com/>

Partner: Sukhibhava/Karuna Trust

Sector: Public Health

Description: These organizations work to address health challenges in low-income communities of India.

Website: <https://www.sukhibhava.org.in/>, <http://www.karunatrust.com/>

Partner: Navadarshanam

Sector: Agriculture and sustainability

Description: An organic farm and Gandhian retreat in northern Tamil Nadu, Navadarshanam investigates ecological and spiritual alternatives to the modern way of living and thinking.

Website: <http://navadarshanam.org/>

Partner: Akshaya Patra

Sector: Food and education

Description: The Akshaya Patra Foundation is a not-for-profit organisation that strives to fight issues like hunger and malnutrition in India. By implementing the Mid-Day Meal Scheme in the Government schools and Government aided schools, Akshaya Patra aims not only to fight hunger but also to bring children to school.

Website: <http://www.akshayapatra.org/>

Partner: Ugly Indian

Sector: Society and civil society

Description: This anonymous movement of Indians across the sub-continent aims to bring attention to sanitation and hygiene issues in cities through mobilizing individuals to clean up their own cities.

Website: <http://theuglyindian.com/>

INSTRUCTOR BIOS

Adam Boies, PhD.

Dr Adam Boies is an Assistant Professor at the University of Minnesota in the Department of Civil, Environmental and Geo- Engineering. Previously he was a Lecturer in the Energy Engineering Division at the University of Cambridge. His research focuses on characterizing the evolution, dynamics and impacts of gas-phase nanoparticles. The applications of his research extend to air quality, transportation emissions and engineered nanoparticles for energy applications. Currently a major research effort within his laboratory is the synthesis of carbon nanotubes from floating nanoparticle catalysts in a continuous high-throughput process for purposes of fibre spinning and matte production. He has led and participated in a number of large projects investigating the dynamics of particles, including serving as lead investigator of transportation energy and emissions within the Energy Efficient Cities initiative and the Centre for Sustainable Freight, which focus on developing analysis tools that demonstrate achievable reductions in energy use and emissions. He is a founding member of Catalytic Instruments GmbH, which is a company that produces measurement devices for air pollution and emissions quantification.

Fred Rose

Fred is the co-founder/director of Acara, a program of the Institute on the Environment, at the University of Minnesota. Acara is a series of courses and incubation activities to turn the passion of students and mentors into viable social and environmental ventures in the US and abroad. Fred has over 30 years of technology and business development experience in corporate, NGO and academic settings. He was director of technology strategy for Honeywell India. He has helped found social ventures in the US, India and Mexico and has taught social entrepreneurship courses at universities in eight countries. He was also the founder of the local non-profit High Tech Kids. Fred's current work involves helping others to design solutions to global environmental challenges.

Aruna Raman

Aruna is India Program Coordinator at Acara, an impact entrepreneurship program at the University of Minnesota. She helps set up internships and fellowships, works closely with students on their social innovation ideas and business plans, builds both classroom and experiential learning-based capacity building programs, performs culture-sensitive primary field research, and functions as Indian liaison, for logistics-related needs. Aruna has close to 15 years of experience with social innovation, program management, coordination, capacity building, incubation, cross-cultural linkages, print and online journalism, marketing and corporate communications, and technical documentation, both in India and the USA. She earned her Masters in International Development from the Graduate School of Public and International Affairs at the University of Pittsburgh, and spent five years in the Southwestern Pennsylvania region, working with nonprofits focused on diaspora relations, cross-cultural competency, and economic development. Aruna also recently completed the Frontier Market Scouts, an intensive two-week program for social enterprise and impact professionals, at the Middlebury Institute of International Studies at Monterey, California (formerly the Monterey Institute of International Studies).

APPENDIX A: EXPERIENTIAL LEARNING REFLECTION

During the course we'll reflect and analyze our readings and experiences using three questions: What? So What? Now What? Explanation follows.

What? Report the facts and events of an experience, objectively.

- What happened?
- What did you observe?
- What issue is being addressed or population is being served?

So What? Analyze the experience.

- Did you learn a new skill or clarify an interest?
- Did you learn, hear, smell, or feel anything that surprised you?
- How is your experience different from what you expected?
- What impacts the way you view the situation/experience? (What lens are you viewing from?)
- What did you like/dislike about the experience?
- What did you learn about the people/community?
- What are some of the pressing needs/issues in the community?
- How does this project address those needs?

Now What? Consider the future impact of the experience on you and the community.

- What seems to be the root causes of the issue(s) addressed?
- What other work is currently happening to address the issue?
- What learning occurred for you in this experience?
- How can you apply this learning?
- What would you like to learn more about, related to this project or issue?
- What follow-up is needed to address any challenges or difficulties?
- What information can you share with your peers or the community?
- If you could do the project again, what would you do differently?

This content originates from the University of Minnesota Community Service-Learning Center. For more information see: <http://www.servicelearning.umn.edu/info/reflection.html>.

APPENDIX B: KANNADA WORDS**Greetings**

Welcome	susvāgata
Hello	namaste
Goodbye	hogi barutheene
Thank you	dhanyavāda
Okay/Yes	howdhu
No	illa
It's good	chennagidhe
Good morning	shubhodaya
Good evening	shubha sāyankāla

Basic phrases

What's your name?	ninna hesarēnu?
My name is ...	nanna hesaru ...
I'm fine	nānu cennāgiddēne
Just a little.	kēvala scalp
I don't understand!	nanage artha āg'lilla

Relations

Brother	anna/tamma
Sister	akka/thangi
Father	appa
Mother	amma

Questions

How are you?	neevu hEgidheera?
How much?	eṣṭu
How old are you?	Nimma vayasse?
Where is . . . ? elli?

Travel

Let's go	
Right	Balagade
Left	yedagade
Go straight	neravagi

Verbs

I want nanege beku
I have mae-re pas hai

Menu

Food	Oota
Water	Neeru
Bottled water	Bisleri neeru
Tea	cahā /chai
Lentils	masūra
Rice	akki
Egg	moṭṭe
Indian flatbread	roti, naan, chapatti
Red Meat (goat)	mutton, mānsa
Chicken	kōḷimari
Vegetables	tharakaari
Potato	aalu gadde

Cauliflower	hoo kosu
Spinach	pālaka
Carrot	karrattu
Cucumber	southe kaayi
Garbanzo bean	kadale kalu

Numbers

One	ondu
Two	eradu
Three	mooru
Four	naalakku
Five	aidhu
Six	aaru
Seven	elu
Eight	entu
Nine	ombatthu
Ten	hatthu
Twenty	ippatthu
Twenty-five	ippattaidu
Thirty	moovatthu
Forty	nalavatthu
Fifty	aivatthu
Sixty	aravatthu
Seventy	eppatthu
Eighty	embatthu
Ninety	tombatthu
One-hundred	nooru
One-hundred fifty	nūru aivattu
Two-hundred	innūru
Two-hundred fifty	innūru aivattu
One-thousand	saavira
Two-thousand	eraḍu sāvira
Three-thousand	mūru sāvira

More basic Kannada words and phrases:

<http://www.kannadabaruthe.com/>

<http://www.bangaloreone.gov.in/public/learnkannada.aspx>

http://mylanguages.org/kannada_verbs.php

APPENDIX C: LOGISTICS NEXT STEPS

1. Passport: Submit a PDF of your passport to Erin ASAP. Ensure your passport is valid. Ensure your passport does not expire within 6 months of your date of return to the US from India. If you do not have a passport, arrange one immediately: http://travel.state.gov/passport/passport_1738.html. See the Learning Abroad Center office for passport photos.

2. Flights:

For students traveling on the group itinerary May 14 – June 5: Please email Fred by 2/22/17 to confirm if you will be flying with the group. In the email include your Delta Skymiles frequent flyer number, any diet restrictions for meals during flights, your full legal name as in your passport, phone number, preferred email address and date of birth. The tentative group flight is:

For all students on the group flight, UMN will book your ticket. Once the flight is booked in your name it cannot be cancelled. In the case of an emergency requiring you to miss the flight, you would be charged a change fee and the difference in flight fare to use the flight at a later date. Flight cost will be included in the program fee.

For students traveling on a non-group itinerary: If you would like to deviate from the group flight, you should discuss your situation with Fred. UMN may still be able to purchase your flight. If you purchase your own flight, please email a copy of the itinerary to Fred. For students purchasing their flight, tuition bills will be reduced by the final cost of a group ticket, approximately \$1400-\$1700. If you purchase a more expensive flight you will not receive a tuition deduction beyond the cost per ticket on the group flight. If you will be arriving in Bangalore on your own without the group, plan to arrive at the hotel by the evening of May 17. Hotel information will be provided ahead of the trip. The program activities will begin in Bangalore morning of May 18.

3. Obtain India visa: Obtain an Indian visa through Trivisa (<http://india.trivisa.com>) ASAP. Submit your visa application by mail to Trivisa-Chicago no later than 3/3/16. As a rule for this study abroad program, students must arrange your tourist visa before flying to India. We recommend that most students apply for a 6 month multiple entry tourist visa through Trivisa (do not apply for a student visa, you are not attending an Indian University). In the case you may return to India in the future you may wish to go for a longer duration multiple entry tourist visa. Be VERY CAREFUL about submitting the correct information on the application and submitting ALL required documents, or the visa application will be declined. The visa expense is not included in the cost of the program. If you have any questions during the visa application process do not hesitate to contact Fred to clarify. The visa processing time takes 10-14 business days. Expedited shipping is not necessary if you obtain your visa well in advance of May.

4. Visit travel clinic: Visit a travel clinic by 3/3/16 to obtain required vaccinations. You may schedule an appointment with Boynton's travel clinic via at 612-625-3222 or <http://www.bhs.umn.edu/east-bank-clinic/international-travel-clinic.htm>. Only your doctor or registered health professional can give medical advice.

5. Back up personal documents: Copy or scan personal documents including passport main page and visa page, photo ID (i.e. driver's license), credit and debit cards. You may leave copies of your personal documents at home or may securely store these docs online so they are accessible while traveling. A free, secure storage site is <http://www.flipdrive.com>. Alternatively you may email them to yourself and keep in an email folder.

6. Obtain a credit card (if you don't have one): Before departing for India, obtain a credit card as a back up in case your debit ATM card is not working. The card should be Visa or MasterCard (not AmEx). Try to arrange a credit card with no foreign transaction fees.

7. Inform financial institutions: Before departing for India, contact your financial institutions (bank and credit card companies) to inform them you'll be in India with card transactions. Some institutions

allow you to update your travel plans through an online account. If you fail to inform your financial institution's, cards may not work.

8. Read CE 4011/5570 India Travel Guide: Review the attached Acara travel guide in Appendix E.
APPENDIX E: INDIA TRAVEL GUIDE

About the guide: This travel guide will help you prepare for India. If you have questions, you may contact Fred Rose (rosex122@umn.edu) or Aruna Raman (arunauminn@gmail.com).

Disclaimer: The content within this guide is intended to serve as a supplement. It is not meant to be a sole source of information for students traveling to India. UMN staff can help address questions and guide planning, but it is up to each student to take care of his/her own preparation. We encourage each student to talk with the appropriate contacts at the Learning Abroad Center, financial institutions, and medical facility in order to ensure full preparation for time abroad. We hope this guide provides useful information that will help you be prepared for India! The University of Minnesota, Acara and any employees of the University of Minnesota are not liable for any losses due to inaccurate information, misguidance or omissions provided in this guide.

A. FLIGHTS.

Students that which to travel together will be booked on a group flight departing Minneapolis (MSP) to Bangalore (BLR) May 16 and returning Bangalore to Minneapolis June 6. A UMN faculty member will accompany students on the group flight to India. If students prefer a deviation from the group itinerary, they should discuss their situation with Fred.

B. ARRIVAL

Visa. US citizens require visas prior to arrival in India. All students should arrange their own visa. We recommend a 6-month multiple entry student visa for most students. In case you plan to return to India in the future you may obtain a longer-term tourist visa. You should *not* apply for an employment visa unless you'll be pursuing a specific business internship or fellowship program following the CE 4011/5570 program.

Visas should be ordered through Trivisa's Chicago location. Details on how to apply for an India visa are here: <http://india.trivisa.com>. The visa process normally takes 10-14 business days to complete. Please be careful to avoid errors during the application process or your visa application may be rejected and the process may be delayed.

Transportation. For students arriving on the group flight in Bangalore the evening of May 15, private vehicles will await your arrival at the airport. The Bangalore airport is outside the city; you can expect a one-hour or longer taxi ride.

Money. You can withdraw Rupees from an ATM by debit card either at the airport or at an ATM after arrival. We recommend withdrawing Rupees at an ATM in Bangalore and having some US dollars on hand to exchange as a back up. Be sure to notify your financial institutions of travel plans prior to departure. Visa (Visa Plus network) and MasterCard (Maestro/Cirrus network) are accepted in India. American Express may not be accepted.

C. LODGING

Lodging will be provided throughout your stay in Bangalore. Hotel addresses will be provided in advance.

D. COMMUNICATION

Cell Phones. You'll need a cell phone in India. We will only provide phones if needed. You may use your own US smart phone, if it is unlocked. Only unlocked cell phones will work with an Indian SIM. If your phone is on contract in the US, your provider may not unlock it. If your phone is not on contract, the provider will typically unlock it. Your US phone must be able to accept a SIM card to be used in India. Normal, micro and nano SIMs can be obtained or cut to size in India. Having a smart phone working in India is convenient but not necessary.

SIM Cards. Your US SIM card should work in India, but using it would be expensive. To avoid data charges, keep your phone on airplane mode when turned on with a US SIM inserted outside the US. UMN will arrange a pre-paid Indian SIM card with 500 Rs talk time prior to your arrival. When you need more airtime you may purchase it at local mobile shops. Domestic calls and text messages in India are affordable, typically 1 Rs / minute and 1 Rs / SMS. International calls from an Indian SIM are costly. Skype, What's App or Google Hangout are better options for calling the US from India. What's App works well for calls.

Laptop and Internet. You do not need a laptop but many students bring one, or a tablet. Wireless internet is commonly available in guest houses and cafes in Indian cities. Once in India you may purchase a pre-paid wireless 3G USB internet device. Pre-paid Internet device options are available via Tata Photon, Idea, Airtel, and other providers. They work well in most areas.

E. MONEY

Acquiring Rupees. The currency in India is the Rupee. Indian law does not permit foreigners to bring Rupees into India. The lowest cost way to acquire Rupees is by debit card at ATMs in India. US Dollars may also be exchanged in India, but the exchange fees are often worse at exchange bureaus than at ATMs. Debit cards serviced by Visa and MasterCard are accepted in India, while American Express is often not accepted. While some restaurants and supermarkets may accept credit/debit cards, many businesses only accept cash. Before departing the US, please call your financial institution(s) or update your online account to inform them of travel plans. The current exchange rate is 67 Rs to 1 USD (as of 2/21/17).

F. HEALTH

Vaccinations. Ensure you are up to date on shots and boosters. You should consult your physician and/or travel clinic for India-specific immunizations. UMN students can make a travel clinic appointment at Boynton at 612-625-3222. More info: <http://www.bhs.umn.edu/east-bank-clinic/international-travel-clinic.htm>.

Travel registration and international CISI insurance: All UMN students must have CISI insurance to travel internationally. You will be automatically enrolled in CISI as part of the program and do not need to apply separately. Questions on CISI insurance can be directed to Kaoru Nunn at nunnx016@umn.edu or 612-626-8832. Note that students traveling abroad should maintain standard health insurance coverage through a US provider while overseas.

Medications. You may want to bring a small supply of preferred over-the-counter drugs for headaches, upset stomach, etc. You'll be able to find most over-the-counter medications at pharmacies in India. You should bring prescription medications you use regularly from the US in sufficient quantity and with any needed documentation.

Healthcare. Healthcare services in India are mostly excellent and affordable. Unlike the US, most folks are able to pay for their health needs even without insurance (in the worst case).

While local clinics are able to attend to most primary healthcare needs, state-of-the-art secondary and tertiary care hospitals with competent doctors address most critical-care needs. It is best to seek recommendations from colleagues/India coordinator (if in Bangalore) for preferred practitioners. A number of Tier 2 cities also boast great hospitals and healthcare providers. Please carry all your medical documents, which any doctor will be able to refer to while treating you. If possible, scan your documents and carry soft copies.

G. GROUND TRANSPORTATION.

Auto rickshaws. “Autos” are readily available for short rides in Indian cities. There is a bit of an art to bargaining for “auto” prices. Generally, auto rickshaw drivers will not take a passenger on a ride for less than 30 to 40 Rs. Drivers sometimes prefer not to use a meter, especially if there is a lot of traffic, and you may need to negotiate a price before the ride. Typically auto drivers in Bangalore are receptive to going on the meter, which is usually reliable. Fixing a price before entering an auto can be a reliable option as well if you know the amount to reach your destination. If you are unsure of how much an auto rickshaw ride should cost, you can take the meter or find out an approximate cost at the hotel or from a local resident.

Bus. Most Indian cities have widespread bus networks that are safe and reliable.

Cabs. There are a number of app-based cab services that you can use. While Uber is available in Bangalore and Delhi, services like Ola, Meru and Taxi For Sure can be used in Bangalore. Tab is a new cab provider/aggregator in Mumbai. It is best to check with local residents for such services. More often than not, there are competitive discounts available on these cab services.

H. FOOD.

Food and water safety. India has awesome food! Unsafe food and water, though, are common sources of stomach issues. Restaurant food is generally safe. Street food from informal vendors can be more risky, but is very tasty. There are exceptions here too. More sanitized versions of street food are available at select outlets (sugarcane juice made with filtered water, for instance). Once again, rule of thumb – check with locals.

A general rule to avoid problems: if it is served hot, eat it. If it is served cold, watch out. Be cautious about eating uncooked vegetables at restaurants or on the street. An advantage with street food is that you see it being made in front of you, so ask if there is anything amiss. Most vendors are cooperative.

Drinking tap water or consuming food that has been exposed to unboiled tap water is not advised. Bottled water (known as mineral or Bisleri water) and filtered water are reliable. Restaurants often serve filtered water by the pitcher or glass, and you may want to ask to make sure it is filtered water prior to drinking.

For those with allergies or food preferences – double check! Veganism and being sensitive to those who are gluten-free (for instance) is catching on (mostly in big cities), so you might need to explain the bare-bones of your choices. Also, a lot of Indians don't have too many varied food allergies (this is changing as we speak), so you might have to deconstruct explanations, and be watchful. Spice levels can be moderately high by default, so request for low or no-spice (or spice on the side) options.

I. PACKING

Clothes. India's climate varies greatly by region and elevation. It tends to be warm year round in the plains, but December/January can be cool, especially at night. India is known for its heat,

which can be extreme March to October, reaching 110-120F at times in the plains regions. Bangalore is warm yet moderate, and while a jacket is needed in winter, other months are warm but rarely as hot as lower lying areas. Dress in India tends to be more conservative than in the US. For men, plan to wear long pants normally, not shorts. For women, plan to wear long pants/long skirts. Long-sleeve or short-sleeve shirts are fine, but shirts should cover shoulders. However, as you've heard many times – there are many India's! You might find that people in cities like Bangalore and Mumbai dress as they do in the US, while smaller towns are more conservative. If you are travelling by public transport, you might want to bring a wrap to cover your shoulders, and then remove it when you are amongst friends/at places where the dress code is more liberal. You will find that textiles and fabrics in India are a treat, no matter which city/town you are in. Take full advantage of local fashion and shopping! Clothes are usually designed to be light, airy, and accommodating of local weather. As always, check with locals for shopping tips! Remember that authentic Indian outfits dyed using vegetable dyes have fast-running colors, so check if the clothes are washing machine-friendly.

- “Business casual” outfits for business meetings
- Long pants, skirts (below knees)
- Short-sleeved and long-sleeved shirts, including collared shirts / polos
- Rain jacket, hat
- 1 pair outdoorsy (athletic) shoes, 1 pair casual shoes, 1 pair sandals
- Undergarments, socks, sleeping attire

Essentials.

- Passport
- Insurance card
- Student ID card
- Debit card and credit card
- Back up US cash to exchange

Electronics

- Laptop
 - USB flash drive
 - Camera/battery charger
-
- MP3 device
 - Plug adapter (can buy in India)
 - US cell phone/charger

Miscellaneous. (note: toiletry items can be purchased in India)

- Shampoo/conditioner/soap
- Toothpaste/toothbrush
- Deodorant
- Razor
- Prescriptions / meds
- Sunblock / bug spray
- Hand sanitizer
- Feminine products
- Games (cards, etc.)
- Glasses/sunglasses/contacts
- Small bag/backpack
- Notebook/pen

Packing Note. We recommend packing light for easy travel. You'll be taking buses, trains and rickshaws in India. Over-sized rolling suitcases should be avoided. You don't need many weeks of clothes. You will be able to do laundry weekly. One carry on bag and one checked medium-sized backpack or duffel bag is typically enough. Keep in mind you'll be able to buy almost anything in India you'd be able to buy in the US!

J. INDIA TRAVEL RESOURCES.

Travel Info:

Lonely Planet Travel Guide – India: <http://www.lonelyplanet.com/india>

US State Dept. – India Travel Info: http://travel.state.gov/travel/cis_pa_tw/cis/cis_1139.html

US State Dept. – India Background Note: <http://www.state.gov/r/pa/ei/bgn/3454.htm>

Social Innovation Websites:

1. The Alternative - <http://www.thealternative.in/>
2. The Better India - <http://www.thebetterindia.com/>
3. Citizen Matters - <http://bangalore.citizenmatters.in/>

Major News Online:

1. The Times of India - <http://timesofindia.indiatimes.com/>
2. The Hindu - <http://www.thehindu.com/>
3. Mint - <http://www.livemint.com/>
4. Deccan Herald - <http://www.livemint.com/>
5. The Hindustan Times - <http://www.hindustantimes.com/>
6. Google News India: <https://news.google.co.in/>

Travel Blogs:

1. A Turquoise Cloud - <https://aturquoisecloud.wordpress.com/> - a heartfelt and whimsical blog on Bangalore.
2. Thrillophilia's list of top 25 Indian travel bloggers - <http://www.thrillophilia.com/blog/top-25-indian-travel-bloggers/>
3. Write Click Travel - <http://writeclicktravel.com/> - travel writer Hema Ramprasad's paean to the restless spirit

Top News Channels:

1. New Delhi Television (NDTV) - <http://www.ndtv.com/video>
2. CNN-IBN - <http://ibnlive.in.com/videos/>
3. Times Now - <http://www.timesnow.tv/>. Check their vitriolic rabble-rousing host Arnab Goswami who has attained notoriety for feeding his own ego. His show, Newshour, is mainly a shoutfest - <http://www.timesnow.tv/The-Newshour/videolist/4310636.cms>
1. Headlines Today - <http://headlinestoday.intoday.in/programmes>

Other Sources:

1. India-specific free ebooks on Project Gutenberg - https://www.gutenberg.org/wiki/India_%28Bookshelf%29 (check with Aruna on authors).
2. Online repository of random Bollywood movies with subtitles - <http://www.einthusan.com/movies/index.php?lang=hindi> (check for malware!)
3. Indian cooking video blog - <http://showmethecurry.com/>

APPENDIX F: INDIA CONTACT LIST (FORTHCOMING)

Students	Karl	Hedlund	hedlu121@umn.edu	
	Qais	Al Ismaili	alism003@umn.edu	
	Olivia	Crowell	crowe122@umn.edu	
	Alana	Helin	helin011@umn.edu	
	Hannah	Sekaran	sekar007@umn.edu	
	Ryan	Valencour	valen263@umn.edu	
	Michelle	Wanek	wanek007@umn.edu	
Instructors	Adam	Boies	boies008@umn.edu	
	Fred	Rose	rosex122@umn.edu	
	Aruna	Raman	arunauminn@gmail.com	+91-99000-83738
Interns				
Lodging				
Taxi/Emergency	Mega Cabs			+91 80 4747 4747
	Ola Cabs			+91 80 3355 3355
	Easy Cabs			+91 80 4343 4343
	Taxi For Sure			+91 80 60601010
	Police			100
	Ambulance			108

APPENDIX G: LOCAL INDIRANAGAR FOOD OPTIONS

Berry'd Alive	Dessert Parlour	Not Required	Rs. 400	9620969017; 9611279911	Yes
BBQ Nation	Casual Dining	Required	Rs. 620-1100/person	080 49652822	No
The Black Rabbit	Bar	Required	Rs.2000	080 42415575	No
California Pizza Kitchen	Casual Dining	Recommended	Rs. 1200	080 64048888 080 64058888	Yes
Chakum Chukum Calcutta on a Roll	Quick kathi rolls	Not Required	Rs. 400	080 49652698	Yes
Chili's	Casual Dining, Tex-Mex, American; Serves alcohol	Not exactly necessary	Rs. 1700	080 42352526	No
Chinita Real Mexican Food	Casual Dining. No Bar.	Recommended	Rs. 1100	9686551896 080 41637107	No
Claytopia	Bistro,	Not exactly necessary	Rs. 600	080 49652733	Yes
Creme and Crust	Cafe, Continental, All day Breakfasts.....	Not Required	Rs. 950	9686377553	Yes
Esplanade	Casual Dining, Authentic Bengali delicacies	Not exactly necessary	Rs. 900	080 49652795	Yes
The Fatty Bao - Asian Gastro Bar	Casual Dining, Cuisine: Asian; Full Bar Available	Recommended	Rs. 2400	080 49652983	No
Glen's Bakehouse	Cafe, Bakery. Known for its desserts. No Bar.	Not Required	Rs. 800	080 41228773	No
Hoppipola	Lounge, Cuisine: Continental	Not Required	Rs.1100	9342723650	No
Little Italy	Casual Dining, Veggie friendly.	Recommended	Rs. 1400	080 25207171 080 25207272	Yes
LOFT38	Lounge, Casual Dining; Serves alcohol	Recommended	Rs. 1500	080 49652537	No
Monkey Bar	Pub	Not Required	Rs. 1500	080 49653197	No
MTR 1924	Quick bites, South Indian, veggie friendly	Not exactly necessary	Rs. 450	080 41690688 9886894116	No
Oye Amritsar	Casual Dining, Punjabi cuisine	Not exactly necessary	Rs. 349/person	080 41232111	No
Paradise	Casual Dining, Cuisine:Biryani, North Indian	Not exactly necessary	Rs. 600	080 68681234	No
Phobidden Fruit	Casual Dining; Cuisine: Vietnamese	Recommended	Rs. 1100	080 41255175	No
Smoke House Deli	Casual Dining	Recommended	Rs. 1500	080 25200899	No
Stoner	Dessert Parlour	Not Required	Rs. 300	080 41312123	Yes
Thulp	Cafe, No Bar.	Not Required	Rs.1000	080 41607606	No
Toit	Pub, Microbrewery, Cuisine: Italian, American	Required	Rs. 2200	9019713388 9019813388	No
Vapour Pub & Brewery	Pub, Cuisine: North Indian, Continental, Chinese	Recommended	Rs.1500	08049653329	No

